ORDER NO. TSD-7608-252

Service Manual

FM/AM/FM STEREO RADIO WITH DOLBY * NOISE REDUCTION SYSTEM, CASSETTE TAPE PLAYER/RECORDER AND RECORD PLAYER

Compact Stereo

SG-2080L

Specifications

AMPLIFIER SECTION

Power Output	MPO 2×30W (THD 1%, 4 ohms) RMS 2×23W/Channel (THD 1%, 4 ohms) 2×18W/Both Channel (THD 1%, 4 ohms)
Frequency Response	10 Hz～25 kHz, ±1.5 dB
Input Sensitivity and Impedance:	
AUX	300 mV, 100k ohms
Tape	300 mV, 30k ohms
Phono	2 mV, 47k ohms
MIC	1 mV, 3k ohms
REC OUT and Impedance	30 mV, 82k ohms (DIN)
Tone Control:	
Bass	±15 dB at 50 Hz
Treble	±15 dB at 10 kHz

FM TUNER SECTION

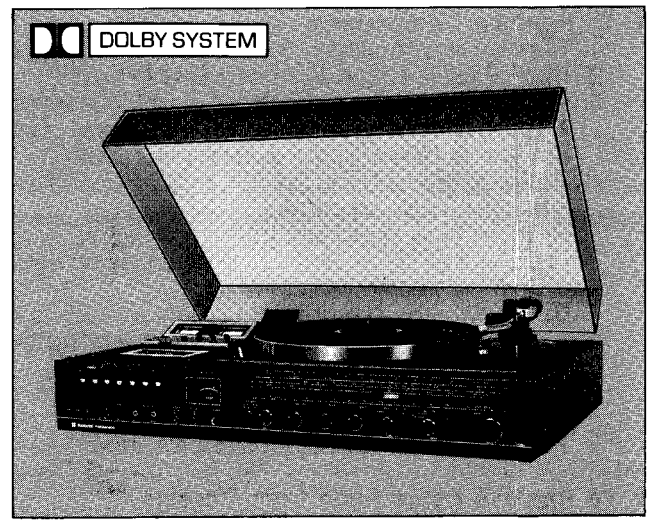
Frequency Range	87.5 MHz～108 MHz (3.43～2.78 m)
Intermediate Frequency (IF)	10.7 MHz
Sensitivity	2.5 μV (IHF) 3.5 μV (40 kHz deviation, S/N 26 dB) (DIN)
Distortion	MONO: 0.6% (at 1 kHz, 60 dB, 100%) STEREO: 0.8% (at 1 kHz, 60 dB, 100%)
Signal to Noise Ratio	60 dB (at 1 kHz, 60 dB, 40 kHz)
Stereo Separation	35 dB (at 1 kHz, 60 dB, 30%)
Image Ratio	45 dB (98 MHz)

AM TUNER SECTION

Frequency Range	MW: 525 kHz～1605 kHz (572～187 m) LW: 145 kHz～285 kHz (2070～1050 m) SW: 5.9 MHz～18 MHz (50.8～16.7 m)
Intermediate Frequency (IF)	455 kHz
Sensitivity	MW: 100 μV/m for 50 mW (1 MHz) LW: 250 μV/m for 50 mW (220 kHz) SW: 8 μV for 50 mW (12 MHZ)
Image Ratio	MW: 45 dB (1 MHz) LW: 43 dB (220 kHz) SW: 15 dB (12 MHz)

RECORD PLAYER SECTION

Player System	Auto Return, Belt-Drive
Turntable	30 cm (12″)
Turntable Speeds	33-1/3 and 45 r.p.m., 2 speeds
Deviation of Turntable-speeds	+1.5% −1.0% DIN
Phonomotor	Frequency Generated Servo DC Motor
Cartridge	Moving Magnet (EPC78SMBD)
Stylus	Diamond (EPS34STSD)
Stylus Pressure	1.5 g～2.0 g
Frequency Response	20 Hz～20 kHz (DIN)



* Dolby and "Double D" devices are the trade marks of the Dolby Laboratories Inc.

Separation	23 dB (DIN)
Signal to Noise Ratio	60 dB (DIN)
Wow and Flutter	0.15% (DIN WTD)

TAPE DECK SECTION

Deck System	Auto-Stop Cassette System
Track System	4-Track, 2-Channel
Recording System	AC Bias 50 kHz
Erasing System	AC Erase 50 kHz
Tape Speed	4.75 cm/sec (1-7/8 ip.s.)
Frequency Response	25 Hz～13 kHz (Normal), 20 Hz～16 kHz (CrO_2)
Signal to Noise Ratio	Dolby OUT: 54 dB Dolby IN: 60 dB (10dB or more improved at more than 5 kHz)
Wow and Flutter	0.15 WRMS 0.35% (DIN)
Erase Ratio	70 dB
Channel Separation	40 dB
Cross Talk	60 dB
POWER SUPPLY	AC 110V, 120V, 220/, 240V, 50/60 Hz
POWER CONSUMPTION	135 W
DIMENSIONS (W×H×D)	
Center Unit	622 mm×183 mm×434 mm (24-1/2″)×(7-7/32″)×(17-3/32″)
WEIGHT	
Center Unit	14.65 kg (32 lb. 4 oz)

● Specifications are subject to change without notice for further improvement.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

DISASSEMBLY INSTRUCTIONS

■ **To Remove Record Player**

Lift record player and unplug 5P connector jack and 2 pin plugs from PC board.

Note:

When removing turntable, be sure to take off the belt from the capstan as shown in Fig. 1.

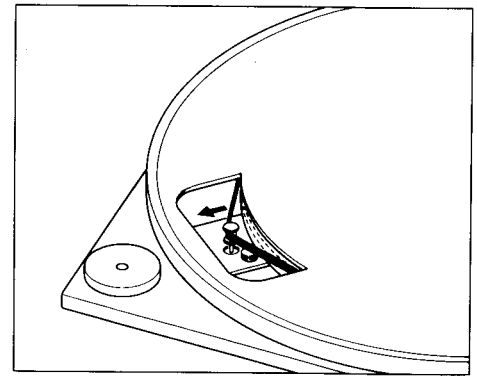


FIG. 1

■ **To Replace Components**

1. Remove record player. (Refer to above instructions.)
2. Push EJECT button to open cassette cover.
3. Carefully push stops of cassette cover located on both sides, as shown in Fig. 2. Then cassette cover can now be removed from cassette deck panel.
4. Remove two cassette deck panel mounting screws, Nos. 19 ~ 20, as shown in Fig. 4.
5. Remove nine (9) knobs from front panel.
6. Remove five (5) bottom board mounting screws, Nos. 1 ~ 5, as shown in Fig. 4.
7. Remove three (3) rear board mounting screws Nos. 6 ~ 8, and remove two (2) cabinet mounting screws, Nos. 9 ~ 10, as shown in Fig. 4.
8. Unsolder faulty components, and replace it with a new one.
9. To reassemble, reverse above procedure.

■ **To Remove Escutcheon from Chassis**

1. Refer to above instructions 1 to 5.
2. Remove three (3) escutcheon mounting screws Nos. 11 ~ 13, as shown in Fig. 4.
3. To reassemble, reverse above procedure.

■ **To Remove Cassette Tape Deck**

1. Refer to instructions 1 to 7 above.
2. Remove five (5) cassette deck mounting screws Nos. 14 ~ 18, as shown in Fig. 4, and remove mike jack.
3. To reassemble, reverse above procedure.

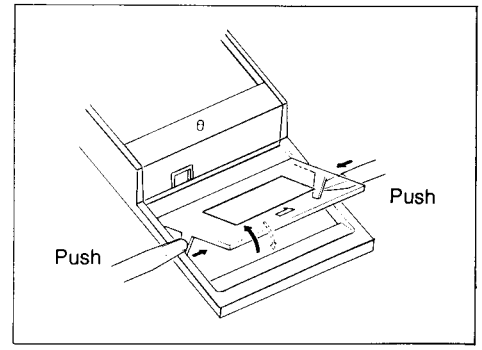


FIG. 2

SERVICING AID

■ **Free-Stop Mechanism of Dust Cover**

This models equipped with free-stop mechanism of dust cover. Dust cover can be stopped to be kept open in the free-stop angle range from about 30° to 60°, as shown in Fig. 3. The mechanism has been thoroughly adjusted in best condition at the factory, and under normal use should not be required additional adjustment. However, after prolonged use or hinge(s) replacement, it may be necessary to adjust hinges.

■ **How to Adjust Hinges**

1. When the screw is turned clockwise (direction A), the lever moves to direction A′ to lessen the spring tension, and opening and closing the dust cover become soft.
2. When the screw is turned counterclockwise (direction B), the lever moves to direction B′ to increase the spring tension, and opening and closing the dust cover become hard.

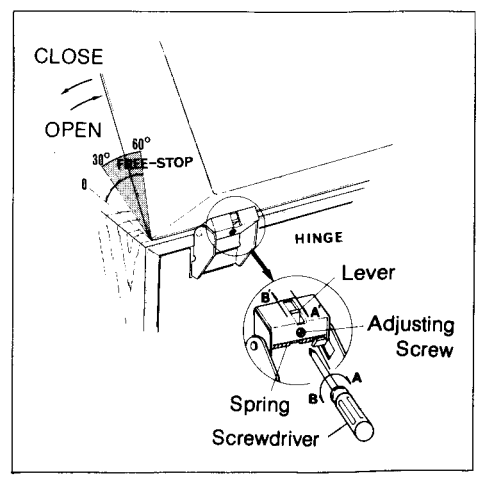


FIG. 3

LOCATION OF PARTS

❶~❹……XYN4+C12S
❺ ……XTW3+8FZK
❻~⑩……XTW3+8
⑪~⑬……XTV3+8FZK
⑭~⑱……XTV3+8BR
⑲~⑳……XTN26+C8

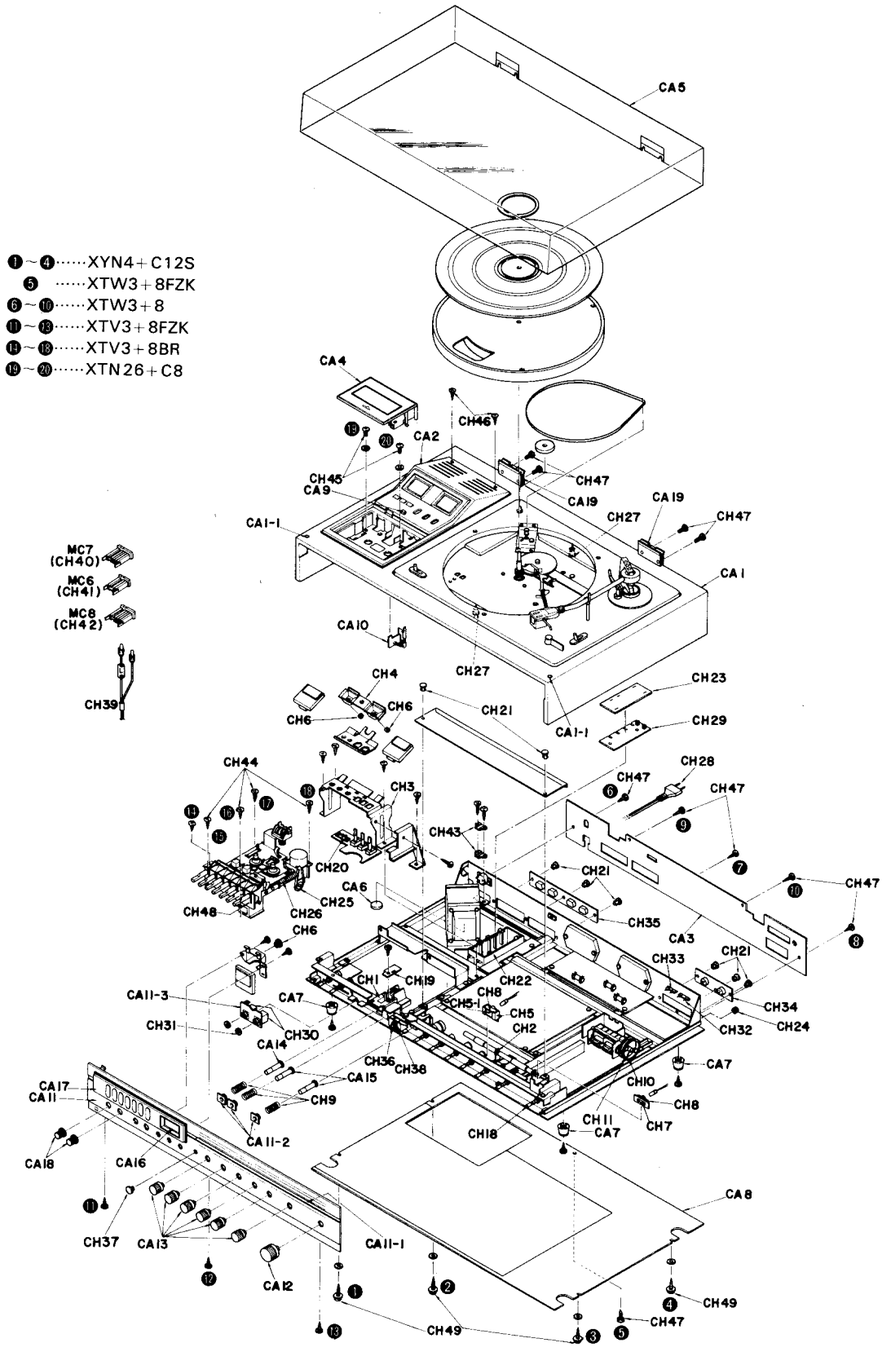


FIG. 4

EXPLODED VIEW OF CASSETTE TAPE PLAYER/RECORDER

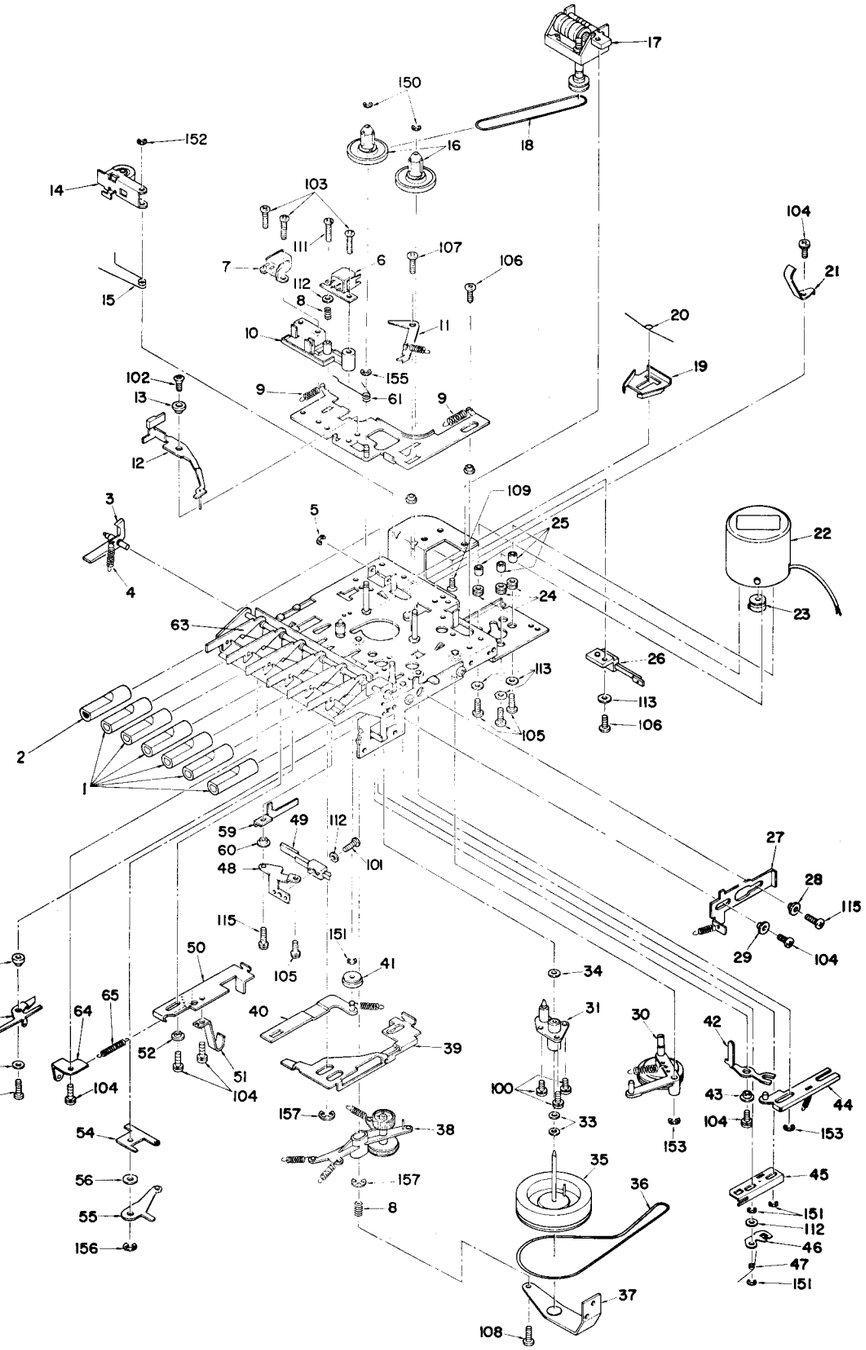
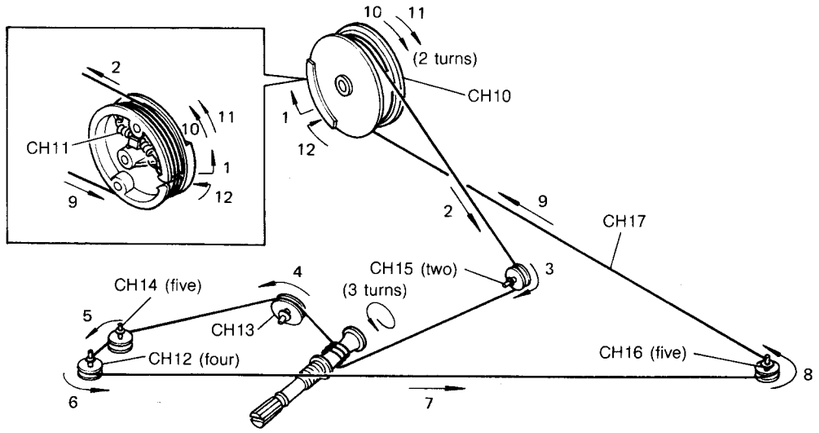


FIG. 5

DIAL CORD STRINGING GUIDE



Tuning Capacitor..... Opened Position
Dial Cord Length..... 165 cm

FIG. 6

ALIGNMENT INSTRUCTIONS (RADIO)—1

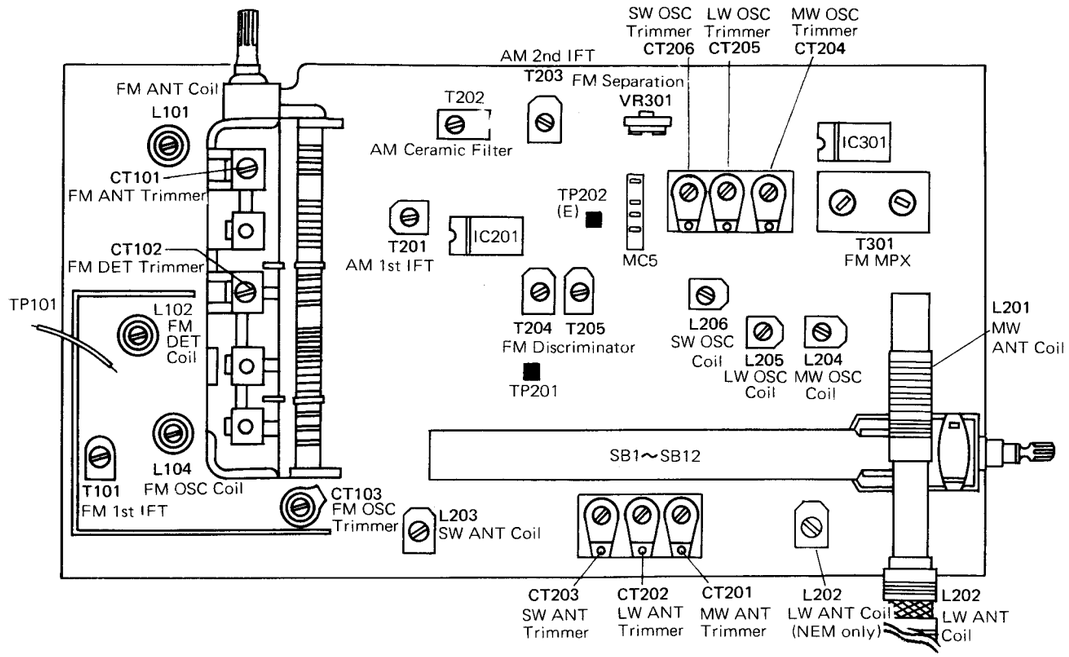


FIG. 7

ALIGNMENT INSTRUCTIONS (RADIO)—2

Notes:
1. Volume Control ..... Maximum (AM-IF and RF, FM-RF)
   Minimum (FM-IF)
2. Bass and Treble Control ..... Center
3. Balance Control..... Center
4. Function Selector ..... Radio
5. Band Selector ..... LW, MW, SW, FM MONO, FM AUTO
6. Power Switch ..... ON
7. Tape Monitor..... SOURCE
8. Output of signal generator should be no higher than necessary to obtain output reading.
9. Make certain that speaker system is connected to the tuner when aligning.

STEP	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
AM-IF and RF ALIGNMENT						
1	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz	Point of non-interference (on/about 600 kHz)	Output meter across speaker jack (L). (Imp. 4 Ω)	T201 (AM 1st IFT) T203 (AM 2nd IFT)	Adjust for maximum output.
2 (LW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	145 kHz 30% Mod. with 400 Hz	145 kHz (16.1 mm)	Output meter across speaker Jack (L). (Imp. 4Ω)	L205 (LW OSC Coil) L202 (LW ANT Coil)	Adjust for maximum output (NEM: coil)
3 (LW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	285 kHz 30% Mod. with 400 Hz	285 kHz (195 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	CT205 (LW OSC Trimmer) CT202 (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz 30% Mod. with 400 Hz	550 kHz (22.3 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	L204 (MW OSC Coil) L201 (MW ANT Coil)	Adjust for maximum output by sliding coil L201 along ferrite core.
5 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 Hz 30% Mod. with 400 Hz	1500 kHz (191.2 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	CT204 (MW OSC Trimmer) CT201 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6 (SW)	Connect to EXT antenna and ground through SW Dummy antenna. (Refer to Fig. 10)	5.9 MHz 30% Mod. with 400 Hz	5.9 MHz (8.4 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	L206 (SW OSC Coil) L203 (SW ANT Coil)	Adjust for maximum output.
7 (SW)	Connect to EXT antenna and ground through SW Dummy antenna. (Refer to Fig. 10)	18 MHz 30% Mod. with 400 Hz	18 MHz (206.2 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	CT206 (SW OSC Trimmer) CT203 (SW ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).

Note: T202 is pre-aligned. Do not touch it.

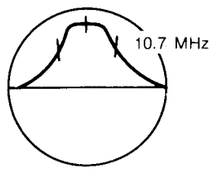


FIG. 8

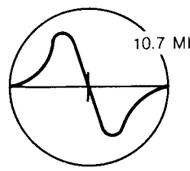


FIG. 9

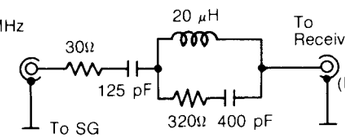


FIG. 10

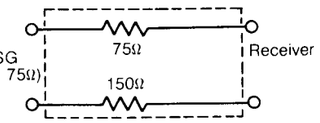


FIG. 11 DUMMY ANTENNA

SCHEMATIC DIAGRAM OF MODI

FM ANT

AM ANT

FM RF AMP
TR101 2SK49

FM OSC
TR102 2SC1675-L

FM MIXER
TR103 2SC1675-L

FM AGC
D101,102 20A90

FM AFC
D103 SC-15

AM CONV
TR201 2SC1359

AM D.AGC
D201 20A90

AM DET
D204 20A90

FM AM IF AMP
IC201 AN217-BB

AM RECT
D205 0A90

FM MPX
IC301 AN271

FM DET
D202,203 20A90

TUNING
TR202 2SC828

AOC
D206 VD1121

RIPPLE FILTER
TR901 2SC1383

STABILIZER
D902 MA1091

RECT
D901 SI
D903,904
D905,906

A to P8

P1

P3

IC201

IC301

DIAL POINTER

TUNING METER LAMP

PL2

PL1

TUNING METER

S8

S9

PHONC

PL3
STEREO EYE

FIG, 2

FIG,3
(NORWAY ONLY)

REFER TO Fig3, Fig4

TAPE EQ AMP
IC401 LA3122

P4

IC801

IC802

Cassette Motor

P7

METER Lch

METER Rch

to P5 B

P5

MIC Lch

MIC Rch

P2

PHONO L

PHONO R

EH

PL4 METER LAMP

PL5 METER LAMP

DOLBY SW

PL6
REC LAMP

PL7
TAPE SEL LAMP

PL8
DOLBY LAMP

BIAS SW

EQ SW

S5
WHISTLE DEFEAT SW

MIC AMP
TR407,408 2SC1327

MUTING
TR403,404 2SC828

TR501,5

BIAS AMP
TR802 2SB324

AOC
D803 VD1121

BIAS OSC
TR801 2SB175

RECT
D801,802 0A91

REC AMP
TR405,406 2SC828

DOLBY
IC801, 802 NE545B

STABILIZER
D909 MA1130

RIPPLE FILTER
TR902 2SC1398

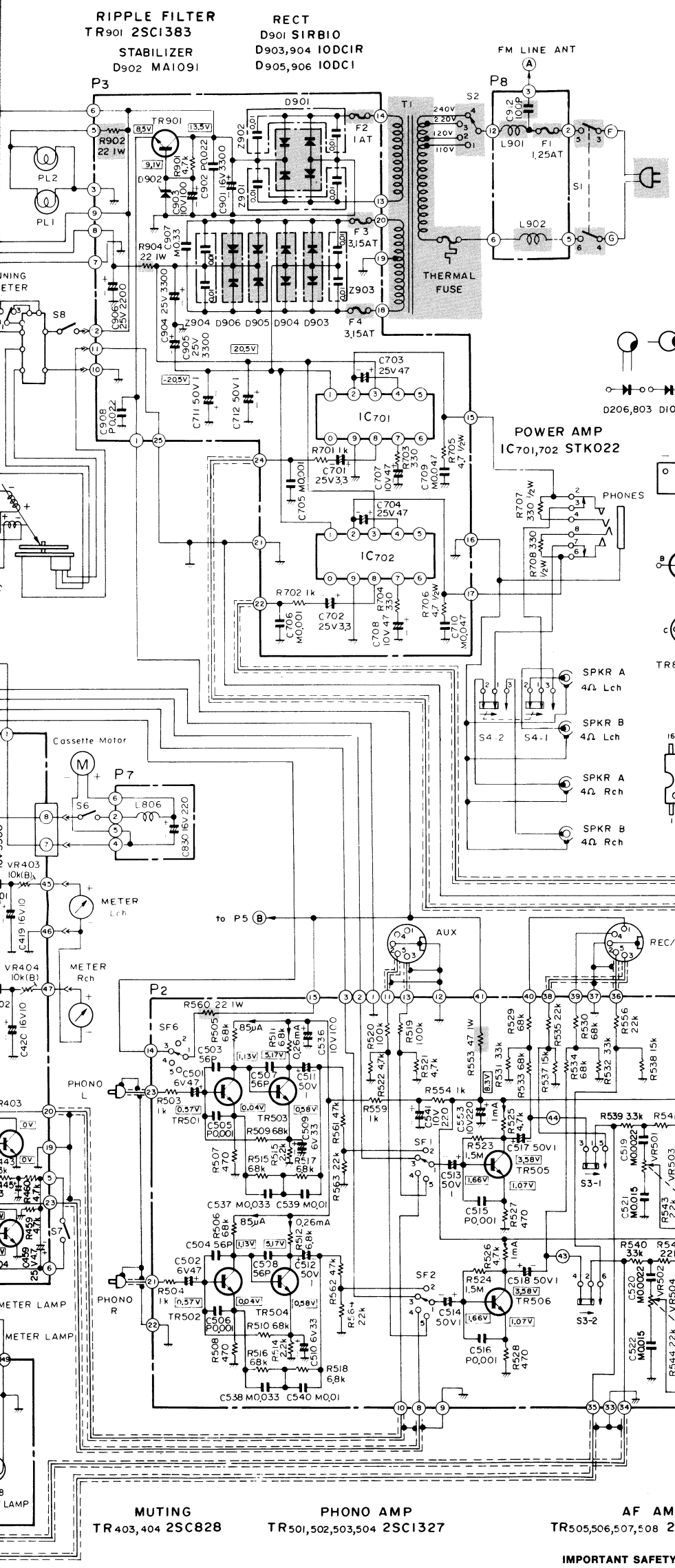
VU METER AMP
TR401,402 2SC828

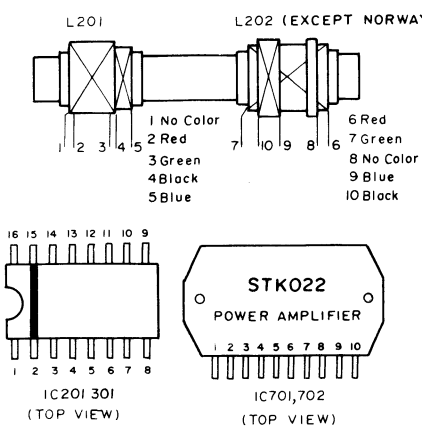
RECT
D401,402 2

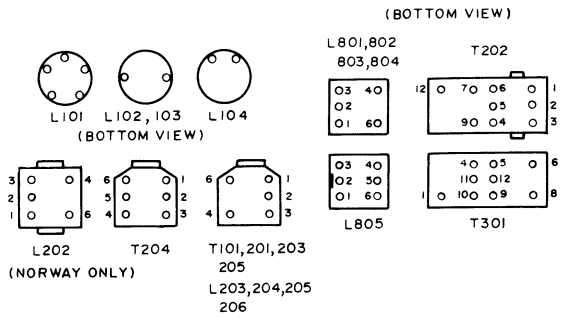
R	241 401 101 102 106 107 108 109 110 111 112 113 213 214 215 216 221 228 229 231 901 511 402 453 103 105 201 204 205 209 208 211 212 239 801 805 301 222 223 218 219 217 227 230 310 902 560 513 702 447 451 455 449 403 104 202 203 207 210 238 234 235 236 237 431 803 302 303 304 811 220 233 309 905 419 904 505 509 517 448 452 456 454 404 405 408 411 442 437 433 802 806 **472** 807 809 462 813 461 305 224 226 306 307 308 415 413 417 423 420 **460** 503 507 515 512 457 **469** 406 407 412 818 817 820 819 826 438 432 804 429 435 808 810 425 812 **471** 815 311 440 416 414 418 424 443 504 506 510 514 458 **470** 464 463 825 824 822 823 821 827 **841** 434 **842** 430 436 428 427 426 814 816 445 441 421 422 446 444 **459** 508 516 518
C	201 102 104 108 110 109 116 208 117 221 227 224 228 230 301 231 232 305 233 237 234 3 903 902 901 705 206 433 205 103 105 113 111 114 115 209 118 211 218 219 222 223 217 228 226 303 817 304 823 306 235 236 906 904 907 711 712 706 434 539 106 112 210 215 212 214 807 809 239 220 811 423 818 821 824 825 307 309 457 312 908 905 503 507 455 401 107 207 411 409 213 801 216 834 803 241 808 810 302 813 812 425 427 822 443 826 308 436 310 311 415 913 417 440 830 505 508 451 453 456 402 403 407 405 838 839 410 835 438 829 802 833 804 805 831 431 429 815 814 803 424 428 421 444 **461** 827 437 416 418 419 501 504 537 425 454 441 404 408 412 406 837 836 832 806 840 432 430 816 804 426 **462** 422 **464** **463** 828 420 445 **459** 502 506 538
L T S	101 201 202 203 102 104 103 207 204 205 206 105 805 801 802 803 804 403 404 401 402 806 101 801 201 202 204 203 205 301 SB2 ST1 ST3 SB4 SB5 SB6 SB7 SB8 S5-2 S5-1 ST8 ST6 SB1 SB9 SII-2 SB12 ST7 SB11 SB10 SI2-3 STII STI2 SI2-1 SI2-6 SI2-5 SI0-3 SI0-4 SB3 SII-1 SI2-2 ST5 ST9 ST10 SI0-1 S7 S6 S9 S8 SF6

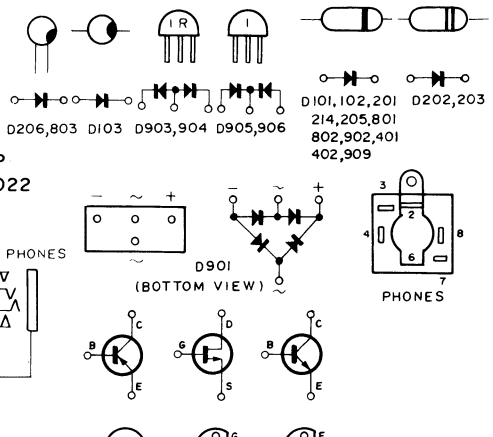
* This diagram might be modified without notice for further development of technology.

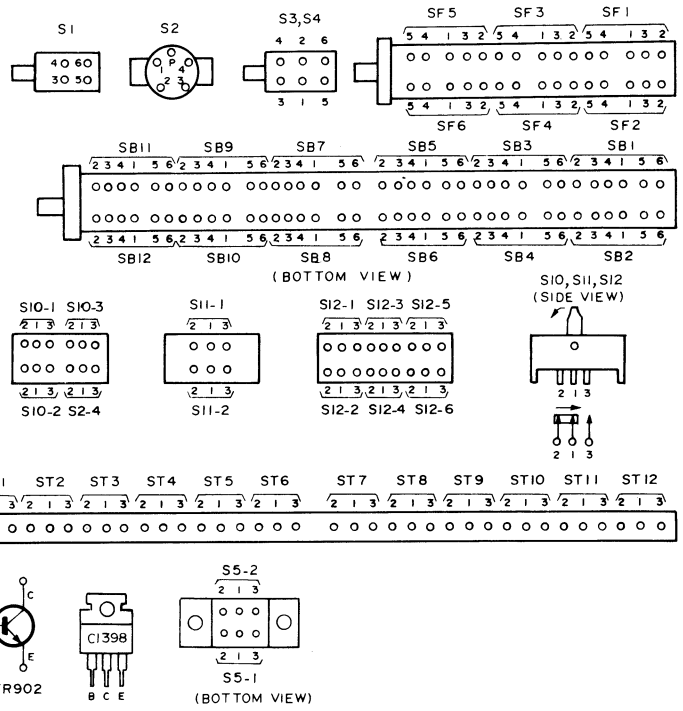
DIAGRAM OF MODEL SG-2080L











IC201

NO	FM (V)	AM (V)
1	0.80	0.80
2	0	0
3	+2.82	+2.87
4	6.50	6.53
5	1.08	1.07
6	0	0
7	+1.08	+1.07
8	+7.90	+7.95
9	+0.89	+7.94
10	+1.08	+1.45
11	+0.79	+0.79
12	+0.89	+7.89
13	+0.56	+0.72
14	+0.88	+1.46
15	+0.89	+7.94
16	+0.56	+0.72

IC301

NO	FM STEREO(V)
1	+2.17
2	+7.84
3	+7.83
4	+7.86
5	+2.23
6	+2.20
7	+5.48
8	+5.45
9	+1.50
10	+0.87
11	0
12	+1.17
13	+0.91
14	0
15	+0.91
16	+6.81

IC701,702

NO	(V)
1	-20.8
2	0
3	+20.8
4	+11.0
5	—
6	—
7	+0.085
8	+0.1
9	0
0	—

IC401

NO	(V)
1	+6.58
2	+0.56
3	+0.01
4	+0.59
5	+6.24
6	+1.94
7	0
8	+11.59
9	+1.94
10	+6.24
11	+0.59
12	+0.01
13	+0.56
14	+6.58

IC801,802

NO	(V)
1	+6.26
2	+6.25
3	+6.30
4	+6.25
5	+6.20
6	+6.25
7	+5 80
8	+6.96
9	0
10	+6.96
11	+7.61
12	+0.66
13	+0.67
14	+0.55
15	+0.55
16	+12.23

NOTES

1) S1 : POWER SWITCH IN "OFF" POSITION
   S2 : POWER VOLTAGE SELECTOR IN "240V" POSITION
   (P: COMMON 1: 110V 2: 120V 3: 220V 4: 240V)
   S3 : TAPE MONITOR SWITCH IN "SOURCE" POSITION
   S4 : SPKR SELECTOR SWITCH IN SPKR "A" POSITION
   S5 : WHISTLE DEFEAT SWITCH IN "A" POSITION
   S6 : TAPE MOTOR SWITCH IN "OFF" POSITION
   S7 : MUTING SWITCH IN "OFF" POSITION
   SF1~6 : FUNCTION SELECTOR SWITCH IN "RADIO" POSITION
   (1: COMMON 2: PHONO 3: RADIO 4: TAPE 5: AUX)
   SB1~12 : BAND SELECTOR SWITCH IN "FM MONO" POSITION
   (1: COMMON 2: FM MONO 3: FM AUTO 4: MW 5: LW 6: SW)
   ST1~12 : REC/PLAY SWITCH IN "PLAY" POSITION
   S8 : PHONO MOTOR SWITCH IN "OFF" POSITION
   S9 : 33-45RPM SELECTOR SWITCH IN "33" POSITION
   S10 : DOLBY SWITCH IN "OFF" POSITION
   S11 : BIAS SWITCH IN "NORMAL" POSITION
   S12 : EQ SWITCH IN "NORMAL" POSITION
2) Letters M, P, K, J and F indicate tolerance of capacitors as follows;
   M = ±20% P = +100 −0 % K = ±10% J = ±5% F = ±1%
3) DC Voltages condition to be measured with DC VTVM under
   no signal condition in "AM" "FM" position
   and Cassette Deck is operated in Rec / Play

MUTING
TR403, 404 2SC828

PHONO AMP
TR501, 502, 503, 504 2SC1327

AF AMP
TR505, 506, 507, 508 2SC900

FILTER
C1398

VU METER AMP
TR401, 402 2SC828

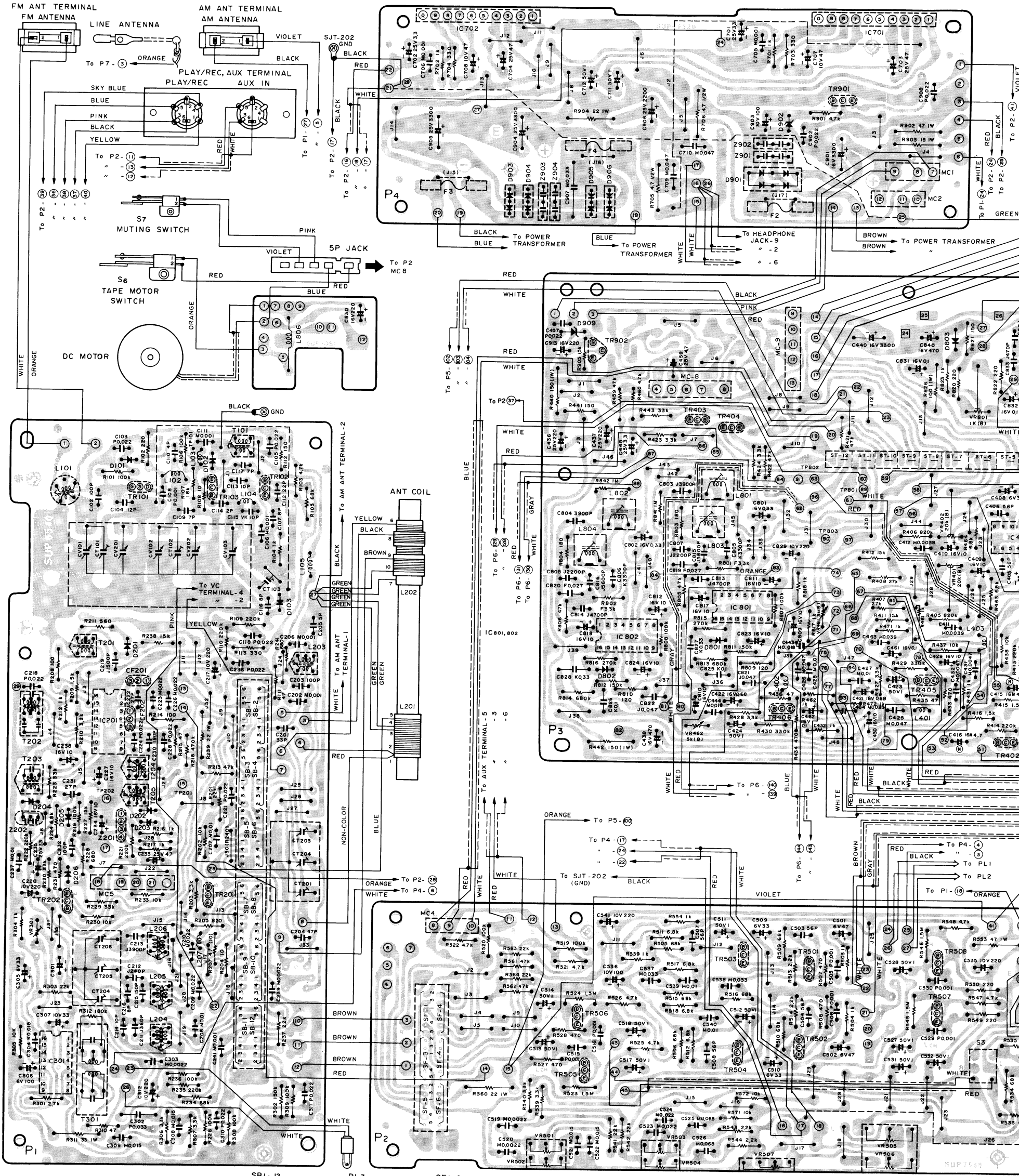
RECT
D401, 402 20A91

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY.
WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

| | | |

WIRING DIAGRAM OF MODEL



TR902	
C	16.24V
B	12.03V
E	12.23V
Ic	54mA

TR403, 404		
C	0V	—
B	0.65V (MUTING ON)	0V (MUTING OFF)
E	0V	—
Ic	—	—

TR901	
C	13.5V
B	9.1V
E	8.5V
Ic	5.1mA

TR405, 406		
C	7.24V	—
B	2.58V	(2.04V)
E	1.90V	(1.37V)
Ic	4.06mA	(4.31mA)

TR401, 402	
C	5.25V
B	2.01V
E	1.33V
Ic	4.06mA

T	
C	0V
B	11.5
E	11.6
Ic	1.48

IC201

PIN NO.	FM (V)	AM (V)
1	0.80	0.80
2	0	0
3	2.82	2.87
4	6.50	6.53
5	1.08	1.07
6	0	0
7	1.08	1.07
8	7.90	7.95
9	0.89	7.94
10	1.08	1.45
11	0.79	0.79
12	0.79	7.89
13	0.56	0.72
14	0.88	1.46
15	0.89	7.94
16	0.56	0.72

IC301

PIN NO.	FM ST (V)
1	2.17
2	7.84
3	7.83
4	7.86
5	2.23
6	2.20
7	5.48
8	5.45
9	1.50
10	0.87
11	0
12	1.17
13	0.91
14	0
15	0.91
16	6.81

* This diagram might be modified without notice for further development of technology.

TR101	
D	6.73V
G	−10.4mV
S	0V
ID	—

TR102	
C	2.83V
B	1.64V
E	1.01V
Ic	1mA

TR103	
C	7.44V
B	0.71V
E	0.03V
Ic	2.9mA

TR201	
C	7.94V
B	2.46V
E	1.83V
Ic	0.6mA

TR202	
C	8.0V
B	0.48V
E	0.97V
Ic	0.1mA

TR505, 506	
C	3.58V
B	1.66V
E	1.07V
Ic	1mA

TR503, 504	
C	5.17V
B	1.13V
E	0.58V
Ic	0.26mA

TR501, 502	
C	1.13V
B	0.57V
E	0.04V
Ic	85μA

TR507, 508	
C	2.89V
B	0.86V
E	0.26V
Ic	1.2mA

AGRAM OF MODEL SG-2080L

TR405, 406		
C	7.24V	—
B	2.58V	(2.04V)
E	1.90V	(1.37V)
Ic	4.06mA	(4.31mA)

TR401, 402	
C	5.25V
B	2.01V
E	1.33V
Ic	4.06mA

TR801		
C	0V	—
B	11.59V	(11.52V)
E	11.61V	(11.52V)
Ic	1.48mA	(2.09mA)

TR802		
C	0.31V	—
B	11.68V	(11.56V)
E	11.78V	(11.65V)
Ic	27.7mA	(28.6mA)

IC701, 702

PIN NO.	(V)
1	20.8
2	0
3	20.8
4	11.0
5	—
6	—
7	0.085
8	0.1
9	0
10	—

IC401

PIN NO.	(V)
1	6.58
2	0.56
3	0.01
4	0.59
5	6.24
6	1.94
7	0
8	11.59
9	1.94
10	6.24
11	0.59
12	0.01
13	0.56
14	0.58

IC801, 802

PIN NO.	(V)
1	6.26
2	6.25
3	6.30
4	6.25
5	6.20
6	6.25
7	5.80
8	6.96
9	0
10	6.96
11	7.61
12	0.66
13	0.67
14	0.55
15	0.55
16	12.23

REC/PLAY HEAD
Connector Lead Wire Color
Pin No. 1 and 3 ..... Red
Pin No. 2 and 4 ..... White

TR501, 502	
C	1.13V
B	0.57V
E	0.04V
Ic	85μA

TR507, 508	
C	2.89V
B	0.86V
E	0.26V
Ic	1.2mA

TR407, 408	
C	2.76V
B	0.84V
E	0.25V
Ic	0.74mA

ALIGNMENT INSTRUCTIONS (RADIO)—3

STEP	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
	FM-IF and DETECTOR ALIGNMENT					
1	High side through 0.001 mfd to point TP101. Common to chassis.	10.7 MHz (400 kHz SWP.)	Point of non-interference (on/ about 98 MHz)	Connect vert amp. of scope to point TP201. Common to chassis. (TP202)	T101 (FM 1st IFT) T204 (FM Disc. IFT)	Adjust for maximum amplitude and symmertrical curve (Refer to Fig. 8)
2	High side through 0.001 mfd to point TP101. Common to chassis.	10.7 MHz (400 kHz SWP).	Point of non-interference (on/ about 98 MHz)	Connect vert. amp. of scope to point TP201. Common to chassis. (TP202)	T205 (FM Disc. IFT)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. (Refer to Fig. 9)
• Before aligning step 1, turn the core of T205 fully counterclockwise.						
	FM-RF ALIGNMENT					
1	Connect to EXT. FM antenna terminal through dummy antenna. Common to chassis. (Refer to Fig. 11)	90 MHz 30% Mod. with 400 Hz	90 MHz (28.7 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	L104 (FM OSC Coil) L101 (FM ANT Coil) L102 (FM DET Coil)	Adjust for maximum output.
2	Connect to EXT. FM antenna terminal through Dummy antenna. Common to chassis. (Refer to Fig. 11)	106 MHz 30% Mod. with 400 Hz	106 MHz (179.3 mm)	Output meter across speaker jack (L). (Imp. 4 Ω)	CT103 (FM OSC Trimmer) CT101 (FM ANT Trimmer) CT102 (FM DET Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
• As three output readings will be present, adjustments must be made at center frequency. **• To correct drift at the FM dial scale (87.5 or 108 MHz), adjust coil L104 and trimmer CT103 with each other.**						

FM STEREO ALIGNMENT

Notes:
1. Stereo Modulator: Connect Stereo Modulator to EXT. Mod. terminal of signal generator
2. Signal Generator:
   - Modulation Rate of 19 kHz Pilot Signal 10%
   - Output Level ..... 30 dB
   - Frequency ..... Approx. 98 MHz
3. Tuner:
   - Volume Control ..... Audible level of speaker sound
   - Treble and bass Control ..... MIN
   - Function Selector ..... Radio
   - Balance Control ..... Center
   - Band Selector ..... FM AUTO

19 kHz AMP. ALIGNMENT

EQUIPMENT CONNECTION		ADJUST	REMARKS
SIGNAL GENERATOR	OSCILLOSCOPE		
Connect to EXT. FM antenna terminal through dummy antenna. (Refer to Fig. 11)	–	(T301)	Pre-aligned. Do not touch it.

SEPARATION ALIGNMENT

Notes:
1. Signal Generator:
   - Modulation Rate of 19 kHz Pilot Signal 10%
   - Modulation Rate of Right and Left Signal 27%
   - Output Level ..... 60 dB
2. Tuner (Balance Control): Adjust balance control level so that output level from both channels becomes equal.
3. Treble and Bass Control ..... MIN

EQUIPMENT CONNECTION			ADJUST	REMARKS
SIGNAL GENERATOR	VTVM	OSCILLOSCOPE		
Connect to EXT. FM antenna terminal through dummy antenna. (Refer to Fig. 11)	Connect across speaker jack. (left side) (Imp. 4 Ω)	Connect vertical amp. input of scope to terminals of VTVM.	VR301 (Separation Control)	Adjust VR301 for minimum indication on VTVM from the left side output when the right side of stereo modulator is modulated. Adjust VR301 in the same way for the right side. Adjust for best balance between "L to R" and "R to L" separation.

ALIGNMENT INSTRUCTIONS (CASSETTE PLAYER/RECORDER)

Notes:
1. Function Selector ..... TAPE
2. Balance Control ..... Center
3. Depress push buttons PLAY and REC at the same time. (Be sure to release the record safety lever manually.)
4. Dolby Switch ..... OUT

STEP	CIRCUITS	VTVM CONNECTION	TAPE SELECTOR	ADJUSTMENT	REMARKS
1	AC BIAS CIRCUIT	Connect positive side to TP804 (+) and negative side to TP805 (−). (Refer to Fig. 12-a)	Bias SW: Normal	L805	Adjust L805 for maximum indication on VTVM.
2	AC BIAS CIRCUIT	Connect positive side to TP804 and negative side to TP805. (Refer to Fig. 12-a)	Bias SW: CrO_2	VR801	Adjust VR801 for 12V reading on VTVM.
3	AC BIAS CIRCUIT	Connect positive side to TP401 and negative side to TP403. (Refer to Fig. 12-a)	Bias SW: Normal	VR803	Adjust VR803 and VR802 for 3.3 mV reading on VTVM.
		Connect positive side to TP402 and negative side to TP404. (Refer to Fig. 12-a)		VR802	
4	19 kHz TRAP CIRCUIT	Connect positive side to TP801 and negative side to TP803(E). (Refer to Fig. 12-a)	EQ SW: Normal	L803	Turn Function Selector to AUX and Dolby SW to IN. Apply audio signal (300 mV, 19 kHz) to both L-ch and R-ch AUX terminals. Adjust L803 and L804 for minimum indication on VTVM.
		Connect positive side to TP802 and negative side to TP804(E). (Refer to Fig. 12-a)		L804	
5	DOLBY CIRCUIT	Connect positive side to TP801 and negative side to TP803. (Refer to Fig. 12-a)	EQ SW: Normal	VR401	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR401 and VR402 for 580 mV reading on VTVM.
		Connect positive side to TP802 and negative side to TP803. (Refer to Fig. 12-a)		VR402	
6	VU METER CIRCUIT	–	EQ SW: Normal	VR403, VR404	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR403 and VR404 so that needle rests at +3 dB (▯▯ mark) as shown in Fig. 12-b.
7	REC CURRENT CIRCUIT	Connect positive side to TP401 and negative side to TP403. (Refer to Fig. 12-a)	EQ SW: Normal	VR461	Turn Function Selector to AUX and Dolby SW to IN. Apply 1 kHz audio signal to both AUX terminals and set both REC VR's at **+3 dB** on VU meter. Adjust VR461 and VR462 for 0.67 mV reading on VTVM.
		Connect positive side to TP402 and negative side to TP403. (Refer to Fig. 12-a)		VR462	

Notes:
1. **Do not touch R/P Head and Erase Head when aligning.**
2. **L801 and L802 are pre-aligned. Do not touch them.**
3. **MTT-150 is DOLBY LEVEL calibration tape.**

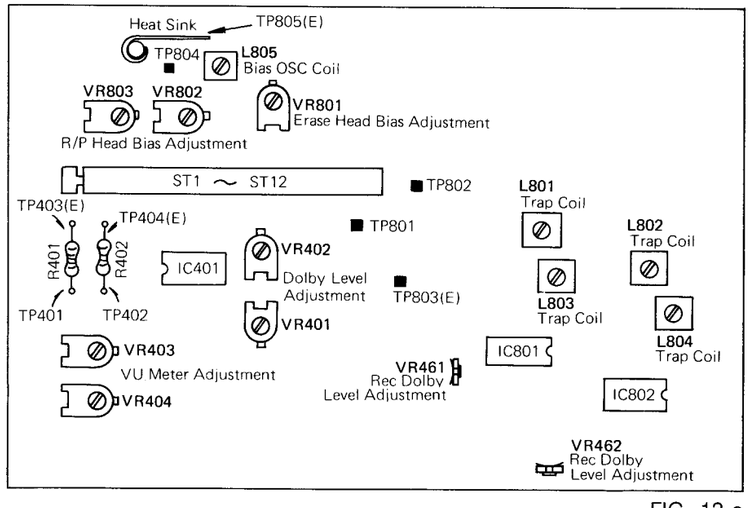


FIG. 12-a

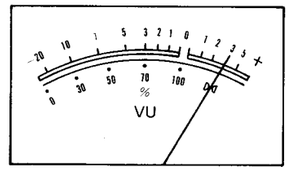


FIG. 12-b

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

Playback a Standard Alignment Tape and turn Azimuty Adjusting Screw for maximum loudness.

*** Test Tape (6.3 kHz)**
VTT-652 or Equivalent

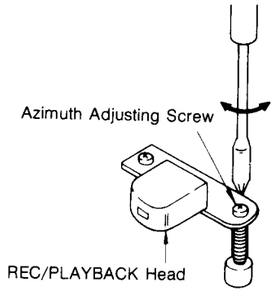


FIG. 13

MECHANICAL ADJUSTMENT OF TAPE PLAYER/RECORDER

PRESSURE ROLLER ADJUSTMENT

1. Switch set to PLAY. (Do not insert cassette.)
2. Hook Spring gauge to arm pressure rollers, as shown in Fig. 14.
3. Pull pressure roller away from the capstan in the direction of arrow 1 with spring gauge and slowly permit the pressure roller to return forward capstan in the direction of arrow 2.
4. Measure tension at time when pressure roller makes contact with capstan (or when pressure roller starts rotating.)
5. The standard tension of pressure roller should be 250 ~ 380 g.
6. If pressure is not within these limits;
   Clean the rubber roller and capstan with a soft cloth moistened with alcohol or replace pressure spring.

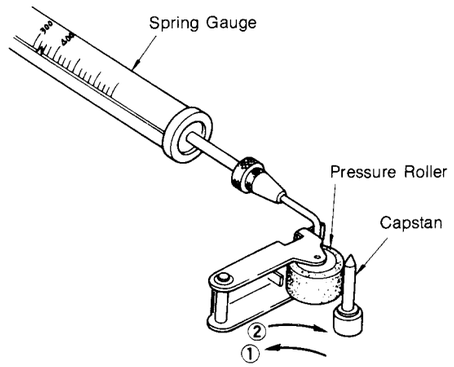


FIG. 14

TAKE-UP TORQUE ADJUSTMENT

* Test Tape: SRK-CT (Take-up Torque Meter)

1. Insert test tape.
2. Rewind the tape to its starting point.
3. Switch set to PLAY.
4. Read "▶" mark of indicator on take-up side, as shown in Fig. 15.
5. Repeat PLAY-STOP several times and read the average tension.
6. The standard take-up tension should be 30 ~ 70 g.cm.
   If take-up tension is not within these limits;
   a) Clean main belt, take-up reel and all parts which contact them with a cotton swab moistened with alcohol, and/or
   b) Switch set to "OFF", remove main belt and make sure that take-up reel and take-up clutch are rotating smoothly.
   c) Change take-up clutch tension by turning the friction spring under reel table, as shown in Fig. 16, and/or
   d) Replace take-up clutch.

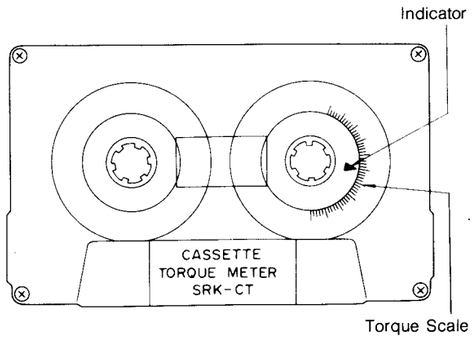


FIG. 15

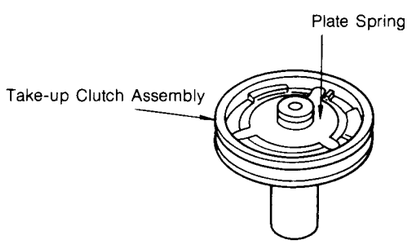


FIG. 16

DOLBY NOISE REDUCTION SYSTEM

GENERAL DESCRIPTION

The Dolby B-Type Noise Reduction System is used in this equipment, which reduces the level of background noise introduced during recording without changing the tone of audio signal.

METHOD OF DOLBY SYSTEM

Signal deviation of Dolby System is shown in Fig. 17.
Low level signal is recorded by boosting and is played back by attenuating as illustrated in the figure.
For example, following a level in Fig. 17:

1. When −30 dB REC signal is applied.
2. It is boosted to −20 dB and recorded on a magnetic head. [ENCODE]
3. Playing back this recorded tape (at −20 dB).
4. The output signal is boosted by Dolby System and reproduced at −30 dB, the same level as recorded. [RECODE]

Fig. 18 shows the boosting frequency characteristics. Generally, the signal deviation increases in proportion to the frequency.
At playback, the characteristics are curved symmetrically against the recording curve and the overall REC and PLAY curve flattens as shown in Fig. 19. This 0 dB is called Dolby Level, which is the flux level of the cassette tape and standardized at the point of 200 pwb/mm, and it is indicated by +3 VU on the VU meter of this equipment.

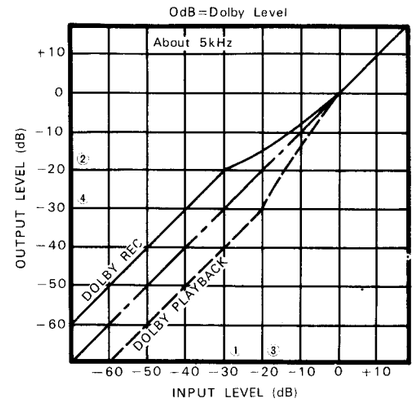


FIG. 17

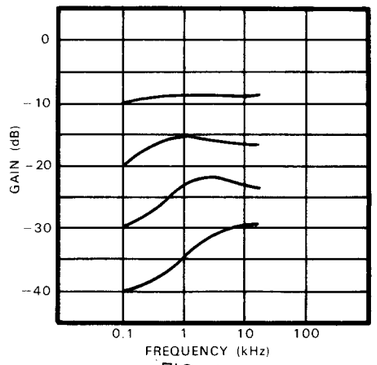


FIG. 18

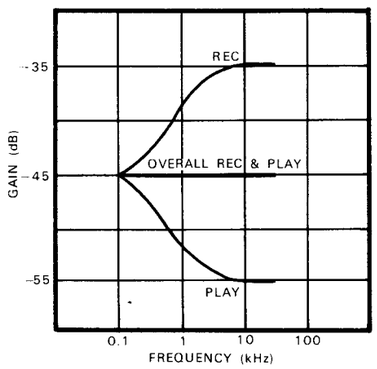


FIG. 19

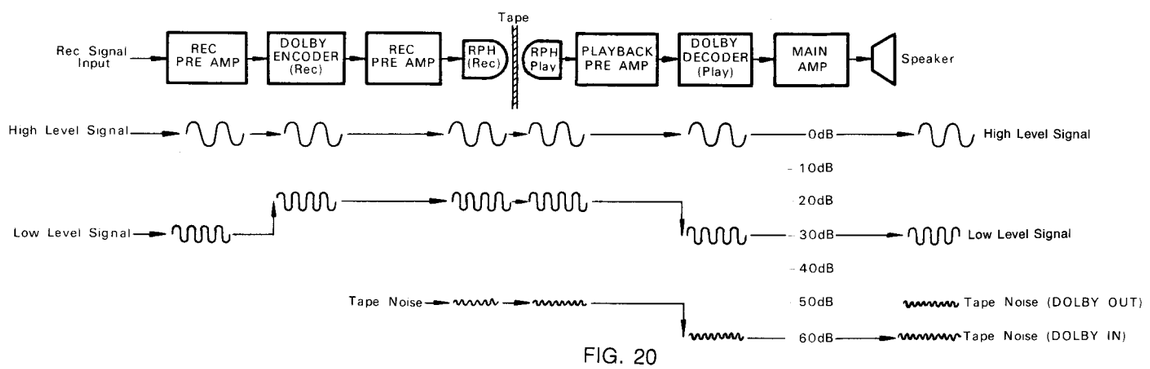


FIG. 20

DOLBY NOISE REDUCTION SYSTEM

PRINCIPLE OF NOISE REDUCTION

Much of the audible noise of a tape recorder is a hiss noise of high and medium frequency created when recording on a magnetic tape while some of it is playback amplifier noise.
A high input signal level suppresses noise but a low input signal level decreases S/N ratio and noise is easily heard.
For solving this problem as shown in Fig. 20, the Dolby System operates by boosting a low-level, high and medium frequency approx. 10 dB when recording, and attenuating the same signal in a complementary manner during playback.
During this process, the hiss noise of high and medium frequency and the amplifier noise are suppressed approx. 10 dB.
Fig. 21 shows noise reduction in Dolby IN/OUT.

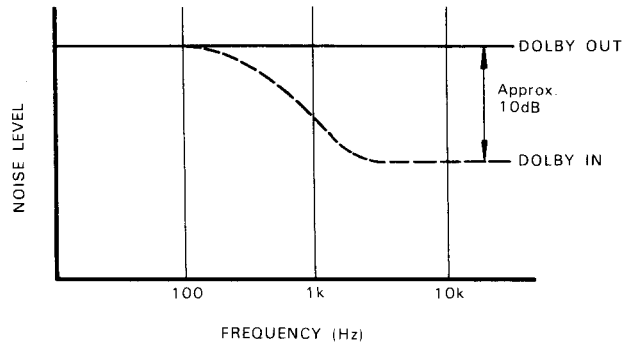


FIG. 21

CIRCUIT OPERATION

The operation of Noise Reduction System is shown in the block diagram of Fig. 22. By turning ST1, ST8, S10-4 and ST11 to REC/PLAY, this circuit operates on ENCODE/DECODE.
[ENCODE] : ST1, ST8 and ST11 in REC position.
Recording signal is applied to REC AMP and passes through AMP "A" of Dolby IC and the low-pass-filter "LPF", and then it enters AMP "B". LPF attenuates unwanted frequencies such as tape recorder bias or FM MPX sub. carrier signals to the level which will not influence the Dolby circuit operation. The output signal of AMP "B" is divided into two paths; one is directly supplied to ADDER "E", which is called a direct signal, while the other controls the noise reduction signal. This signal, passing through ST11, S10-4, high-pass-filter "HPF", variable resistance "F" and AMP "C", enters ADDER "E" and increases the direct signal.
As a result, REC signal from INVERTER "K" is boosted.
[DECODE] : Essentially the same circuitry.
ST1, ST8 and ST11 in PLAY position.
Playback signal from the playback head "RPH" is aplied to PLAYBACK PRE AMP and passes through ST8, AMP "A" of Dolby IC, "LPF" and AMP "B", and then it enters ADDER "E" as the direct signal. One part of output signal from INVERTER "K", passing through ST11, is supplied to MAIN AMP, and the other, as Noise Reduction Signal, passes through S10-4, "HPF".
Variable Resistance "F" and AMP "C", are applied to ADDER "E" in opposite phase. As a result, the level of the playback signal is attenuated. This circuit operates to boost at REC position [ENCODE] and to attenuate at PLAY position [DECODE].
"G" is the rectifying and smoothing circuit of Noise Reduction Signal and controls Variable Resistance "F". And "F" and "HPF" compose the dynamic high pass filter, and control the boosting and attenuating degree of high and medium frequency in response to the signal level (Figs. 18 and 19). "T" is the circuit setting the response time of Dolby.

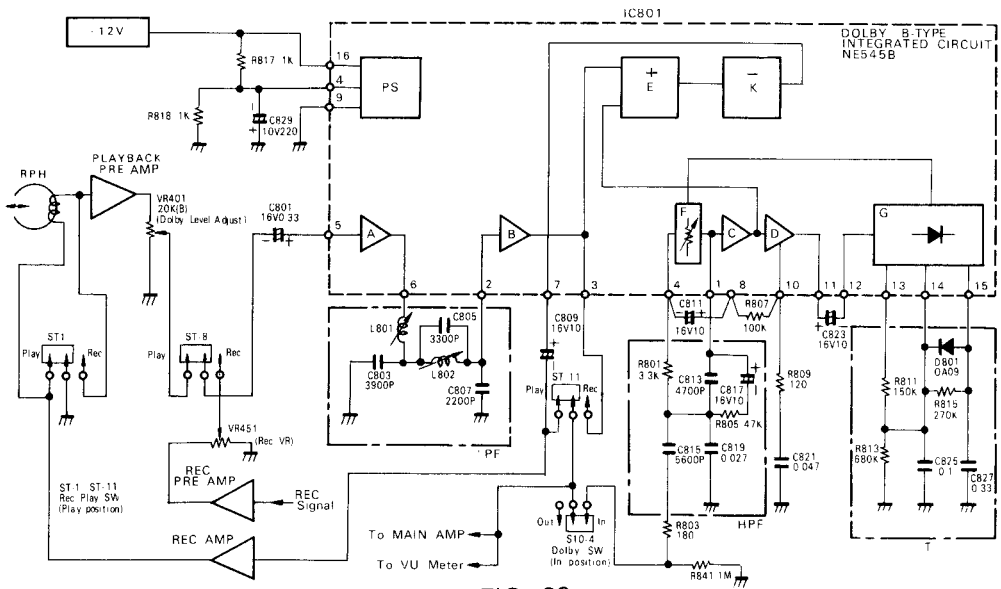


FIG. 22

EXPLODED VIEW OF RECORD PLAYER

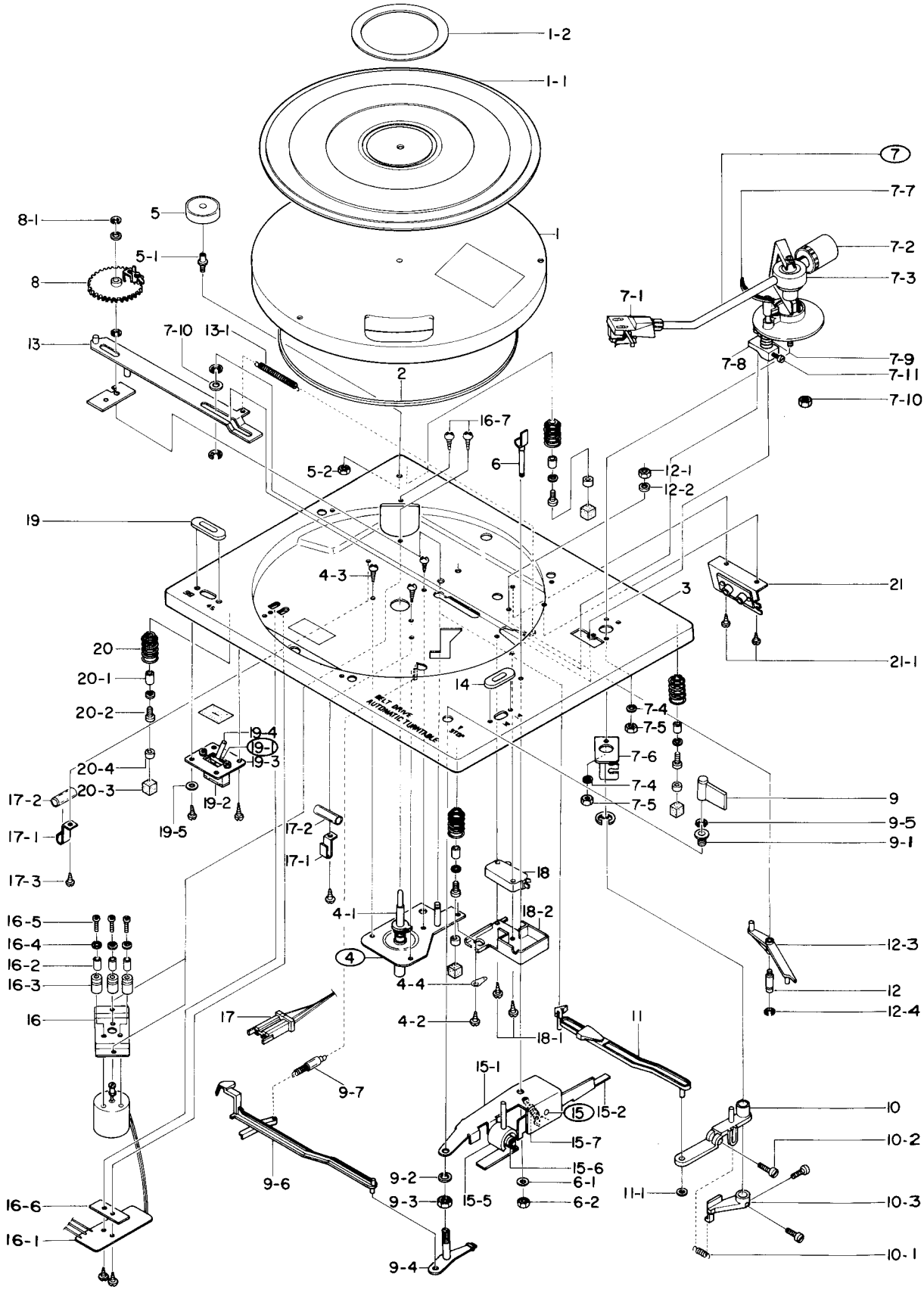


FIG. 23

SERVICING THE RECORD PLAYER

CARTRIDGE REPLACEMENT

1. Remove the headshell fixing nut by turning it clockwise and remove headshell from pickup arm.
2. Remove cartridge from headshell by removing the two screws and disconnecting the lead wires from cartridge, as shown in Fig. 24.
3. Using the two nuts attached, mount a new cartridge onto headshell so that the cartridge is perpendicular to the disc surface.

   Note:
   Correct stylus position can be obtained by relocating the cartridge, as shown in Fig. 25.
4. Connect the lead wires of identical colors as shown in Fig. 26.
5. Install headshell to pickup arm.

STYLUS REPLACEMENT

1. Lift pickup arm to a position that will make the stylus accessible.
2. Gently remove worn stylus and replace it with a new one, as shown in Fig. 27.

LUBRICATION

The record player has been thoroughly lubricated at the factory and under normal use should not require additional lubrication. When replacing some parts, however, it may be necessary to lubricate the parts as specified.
(Apply grease to Ⓖ as shown in Figs. 28 and 29.)

Note:
Do not allow grease to touch motor pulley, belt and turntable.

STYLUS PRESSURE ADJUSTMENT

1. Release pickup arm from its seated position. Place a record on the turntable. Then, balance the pickup arm by turning in or out the balance weight until the stylus is leveled to the surface of the record (as viewed from the turntable unit side).
2. Set the stylus pressure dial to "0", and since the specified stylus pressure of the cartridge is 2.0 grams, set the balance weight dial to "2" by turning the weight counterclockwise (as viewed from the front panel side.).

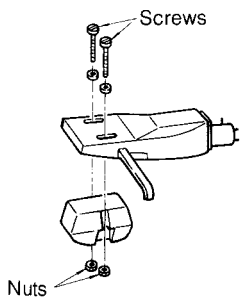


FIG. 24

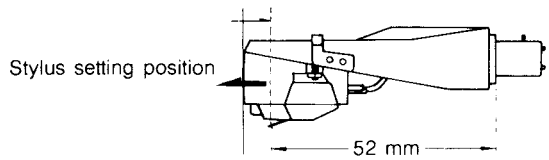


FIG. 25

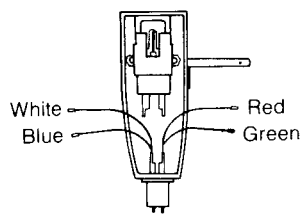


FIG. 26

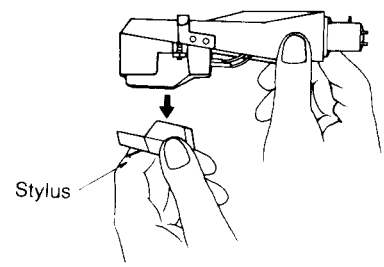


FIG. 27

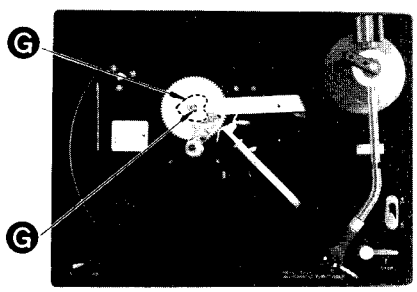


FIG. 28

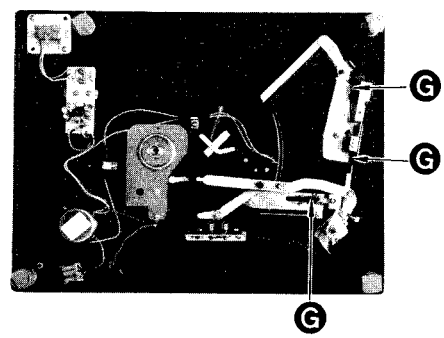


FIG. 29

BLOCK DIAGRAM OF MODEL SG-2080L

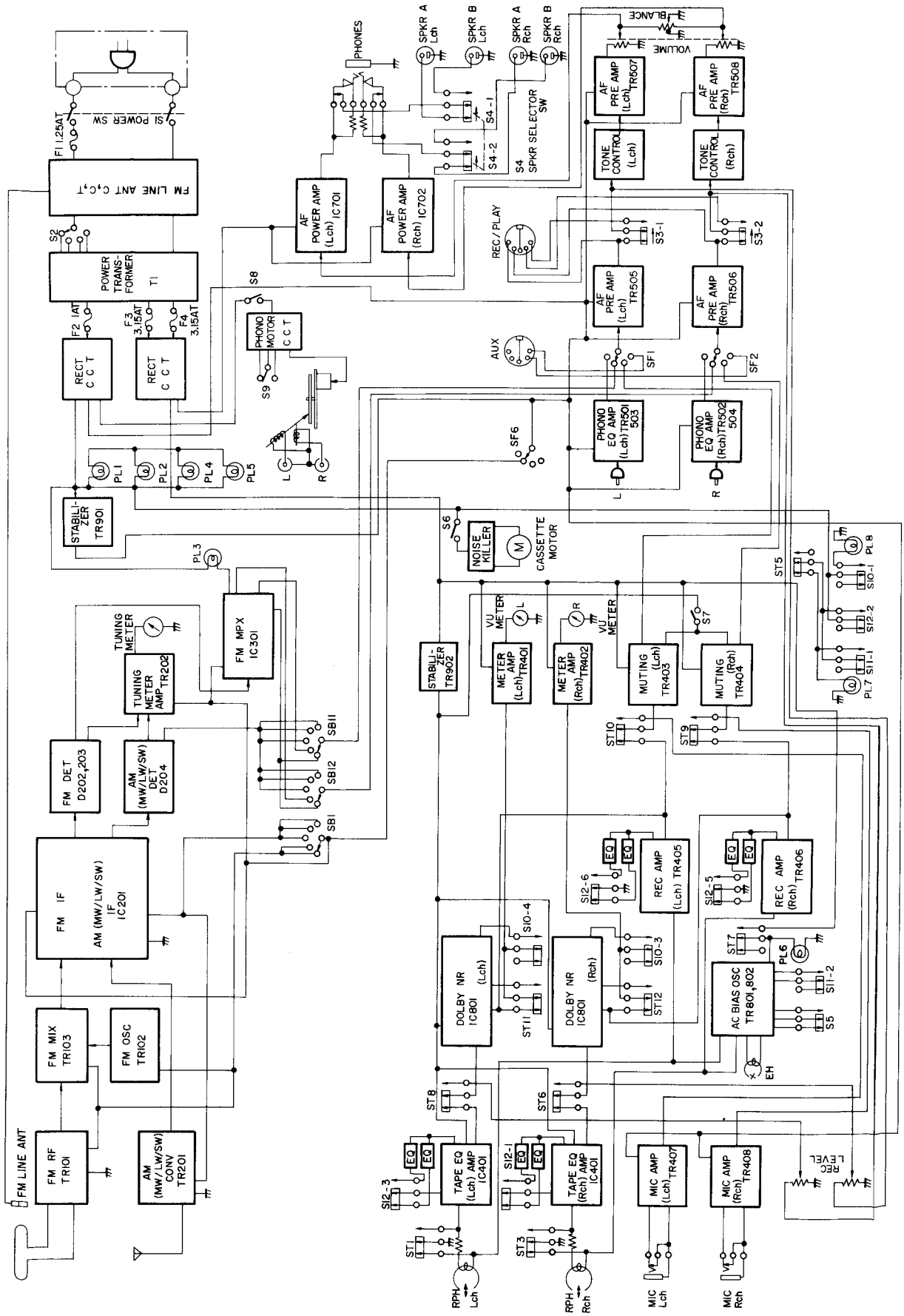


FIG. 30

REPLACEMENT PARTS LIST

NOTES:
1. Part numbers are indicated on most mechanical parts.
2. Please use this part number for parts orders.
3. Part numbers composed by bold face are service standard parts and may differ from production parts.
4. Components identified by shaded area have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
5. A ~ C rank.
   A rank parts will cover 80% of repair needs.
   A + B rank parts will cover 95% of repair needs.
   C rank parts are less necessary.
6. The term "M. Film" is the abbreviation of Metal Film.

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
TRANSISTORS				
TR101	**2SK49**	Transistor, FM RF Amplifier	1	A
TR102	**2SC1675-L**	Transistor, FM Oscillator	1	A
TR103	2SC1675-L	Transistor, FM Mixer	1	A
TR201	**2SC1359**	Transistor, AM Converter	1	A
TR202	**2SC828**	Transistor, Tuning	1	A
TR401~406	**2SC828**	Transistor, VU Meter Amp., Muting and REC Amp.	6	A
TR407,408	**2SC1327**	Transistor, MIC Amplifier	2	A
TR501~504	**2SC1327**	Transistor, Phono Amplifier	4	A
TR801	**2SB175**	Transistor, Bias Oscillator	1	A
TR802	**2SB324**	Transistor, Bias Amplifier	1	A
TR901	**2SC1383**	Transistor, Ripple Filter	1	A
TR902	**2SC1398**	Transistor, Ripple Filter	1	A
TR505~508	**2SC900**	Transistor, AF Amplifier	4	A
INTEGRATED CIRCUITS				
IC201	**AN217**	IC, FM IF Amplifier	1	A
IC301	**AN271**	IC, FM MPX Amplifier	1	A
IC401	LA3122	IC, Tape Equalizer Amplifier	1	A
IC701,702	STK022	IC, Power Amplifier	2	A
IC801,802	NE545B	IC, Dolby	2	○A
DIODES				
D101,102	**2-OA90**	Diode, FM AGC	2	A
D103	SC-15	Diode, FM AFC	1	A
D201,204	**2-OA90**	Diode, AM DET, AM D AGC	2	A
D202,203	**2-OA90**	Diode, FM DET	2	A
D205	**2-OA90**	Diode, AM Rectifier	1	A
D206	VD1121	Diode, AOC	1	A
D401,402	**2-OA90**	Diode, Rectifier	2	A
D801,802	OA91	Diode, Rectifier	2	○A
D803	VD1121	Diode, AOC	1	A
D901	S1RB10	Diode, Rectifier	1	A
D902	**MA1091**	Diode, Rectifier	1	A
D903,904	10DC1R	Diode, Rectifier	2	A
D905,906	10DC1	Diode, Rectifier	2	A
D909	**MA1130**	Diode, Stabilizer	1	A
THERMISTOR				
TH801	RRT103	Thermistor, Temperature Compensator	1	A
LAMPS AND FUSES				
PL1,2,4,5	XAMR53X300	Pilot Lamp	4	A
PL3	**XAMR34X500-1**	Pilot Lamp	1	A
PL6,7,8	**XAMR53X300**	Pilot Lamp	3	A
F1	XBAS2A1201	Fuse, 1.25AT	1	A
F2	XBAS2A1004	Fuse, 1AT	1	A
F3,4	XBA2C31TR0	Fuse, 3.15AT	2	A
METER				
M1	SSM60	Meter, Tuning	1	○A
M2,3	SSM86	Meter, VU Level	2	○A
COMPONENT COMBINATION				
Z201	**EXA5DL04C**	Component Combination	1	B
Z202	**EXAF203Z471**	Component Combination	1	B
Z901~904	RXAF103Z22EY	Component Combination	4	B

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
COILS AND TRANSFORMERS				
L101	SLA4N2-O	Antenna Coil, FM	1	A
L102	RLD4N30	Detector Coil, FM	1	A
L103	RLQY30S1-O	Coil, FM IF Trap	1	A
L104	SLO4N12-O	Oscillator Coil, FM	1	A
L105	ELQ5A9R	Coil, Choke	1	A
L201	SLF6G26-O	Ferrite Antenna Coil, MW/SW	1	A
L202	SLA1C2-M	Antenna Coil, LW (NEM only)	1	A
L203	SLA3M2	Antenna Coil, SW	1	A
L204	SLO2M2-M	Oscillator Coil, MW	1	A
L205	SLO1M2	Oscillator Coil, LW	1	A
L206	SLO3M4	Oscillator Coil, SW	1	A
L207	RLQY25S-5	Coil, Choke	1	A
T101	RLI4M101	IFT, FM 1st IFT	1	A
T201	SLI2M102	IFT, AM 1st	1	A
T202	RLI7W105R-T	CFT	1	A
T203	RLI2M402	IFT, AM	1	A
T204	RLI4M501-M	IFT, FM Discriminator	1	A
T205	RLI4M502-M	IFT, FM Discriminator	1	A
T301	RLM1Z3Q-K	MPX Coil, FM	1	A
T1	SLT5M28-W1	Power Transformer	1	○ A
CF201,202	RVFCF10M12CR	CFT, FM	2	A
L401,402	SLQU222-2Y	Coil, REC Equalizer	2	A
L403,404	SLQV393-4Y	Coil, Trap	2	A
L801,802	SLQC363-2K	Coil, 19 kHz Trap	2	○ A
L803,804	SLQC233-2K	Coil, 38 kHz Trap	2	○ A
L805	SLO9Z10-K	Bias Oscillator Coil	1	A
L806	ELQ250A999	Coil, Choke	1	A
T801	SLT6E2-D	Output Transformer, Bias Oscillator	1	A
L901,902	SLQY35S-2S	Coil, RFC	2	B
RESISTORS				
R101	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R102	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R103	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R104	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R105	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	1	C
R106	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R107	**ERD25TJ183**	Carbon 18k ohm 1/4W ±5%	1	C
R108	**ERD25TJ100**	Carbon 10 ohm 1/4W ±5%	1	C
R109,110	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C
R111	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	1	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R112	**ERD25TJ151**	Carbon 150 ohm 1/4W ±5%	1	C
R113	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	1	C
R201	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C
R202	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R203	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C
R204	**ERD25TJ100**	Carbon 10 ohm 1/4W ±5%	1	C
R205	**ERD25TJ821**	Carbon 820 ohm 1/4W ±5%	1	C
R207	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	1	C
R208	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	1	C
R209	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C
R210	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C
R211	**ERD25TJ561**	Carbon 560 ohm 1/4W ±5%	1	C
R212	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R213	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R214	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	1	C
R215	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	1	C
R216,217	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R218	**ERD25TJ474**	Carbon 470k ohm 1/4W ±5%	1	C
R219	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R220	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C
R221,222	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C
R223	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C
R224	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	1	C
R226	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R227	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	1	C
R228	**ERD25TJ681**	Carbon 680 ohm 1/4W ±5%	1	C
R229	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C
R230	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R231	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	1	C
R233	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R234	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	1	C
R235	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	1	C
R236	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R237	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C
R238	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	1	C
R239	**ERG1ANJ220**	M. Film 22 ohm 1W ±5%	1	C
R240	**ERD25TJ330**	Carbon 33 ohm 1/4W ±5%	1	C	NEM only
R241	**ERD25TJ681**	Carbon 680 ohm 1/4W ±5%	1	C
R301	**ERD25TJ272**	Carbon 2.7k ohm 1/4W ±5%	1	C
R302	**ERD25TJ154**	Carbon 150k ohm 1/4W ±5%	1	C
R303	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C
R304	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R305	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R306	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C
R307	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C
R308,309	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	2	C
R310	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	1	C
R311	**ERG1ANJ330**	M. Film 33 ohm 1W ±5%	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R312	**ERD25TJ184**	Carbon 180k ohm 1/4W ±5%	1	C
R401,402	**ERD25TJ100**	Carbon 10 ohm 1/4W ±5%	2	C
R403,404	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C
R405,406	**ERD25TJ824**	Carbon 820k ohm 1/4W ±5%	2	C
R407,408	**ERD25TJ273**	Carbon 27k ohm 1/4W ±5%	2	C
R411,412	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	2	C
R413,414	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C
R415,416	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	2	C
R417,418	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C
R419,420	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C
R421,422	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	2	C
R423,424	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R427,428	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R429,430	**ERD25TJ334**	Carbon 330k ohm 1/4W ±5%	2	C
R431,432	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R433,434	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	2	C
R435,436	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	2	C
R437,438	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R440	**ERA1ANJ151**	M. Film 150 ohm 1W ±5%	1	C
R441	**ERD25TJ151**	Carbon 150 ohm 1/4W ±5%	1	C
R442	**ERG1ANJ151**	M. Film 150 ohm 1W ±5%	1	C
R443	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C
R444	**ERG1ANJ680**	M. Film 68 ohm 1/4W ±5%	1	C
R445	**ERG1ANJ470**	M. Film 47 ohm 1W ±5%	1	C
R446	**ERG1ANJ220**	M. Film 22 ohm 1W ±5%	1	C
R447,448	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R449	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	1	C
R451,452	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	2	C
R453,454	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R455,456	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C
R457,458	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R459	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	1	C
R460	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R461,462	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R463,464	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R469,470	**ERD25TJ823**	Carbon 82k ohm 1/4W ±5%	2	C
R471,472	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R503,504	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R505,506	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R507,508	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	2	C
R509,510	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R511,512	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
R515,516	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R517,518	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R519,520	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	2	C
R521,522	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	2	C
R523,524	**ERD25TJ155**	Carbon 1.5M ohm 1/4W ±5%	2	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R525,526	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	2	C
R527,528	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	2	C
R529,530	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R531,532	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	2	C
R533,534	**ERD25TJ683**	Carbon 63k ohm 1/4W ±5%	2	C
R535,536	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	2	C
R537,538	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	2	C
R539,540	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R541,542	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	2	C
R543,544	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C
R545,546	**ERD25TJ155**	Carbon 1.5M ohm 1/4W ±5%	2	C
R547,548	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	2	C
R549,550	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	2	C
R553	**ERG1ANJ470**	M. Film 47 ohm 1W ±5%	1	C
R554	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R560	**ERG1ANJ220**	M. Film 22 ohm 1W ±5%	1	C
R559	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R561,562	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	2	C
R563,564	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	2	C
R571,572	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R701,702	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R703,704	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C
R705,706	**ERD50TJ4R7**	Carbon 4.7 ohm 1/2W ±5%	2	C
R707,708	**ERD50TJ331**	Carbon 330 ohm 1/2W ±5%	2	C
R801,802	ERO25CKF3301	Carbon 3.3k ohm 1/4W ±1%	2	○C
R803,804	**ERD25TJ181**	Carbon 180 ohm 1/4W ±1%	2	C
R805,806	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	2	C
R807,808	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	2	C
R809,810	**ERD25TJ121**	Carbon 120 ohm 1/4W ±5%	2	C
R811,812	**ERD25TJ154**	Carbon 150k ohm 1/4W ±5%	2	C
R813,814	**ERD25TJ684**	Carbon 680k ohm 1/4W ±5%	2	C
R815,816	**ERD25TJ274**	Carbon 270k ohm 1/4W ±5%	2	C
R817,818	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R819	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	1	C
R820	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R821	**ERD25TJ151**	Carbon 150 ohm 1/4W ±5%	1	C
R822	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R823,824	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R825	**ERD25TJ220**	Carbon 22 ohm 1/4W ±5%	1	C
R826	**ERG1ANJ101**	M. Film 100 ohm 1W ±5%	1	C
R827	**ERG1ANJ151**	M. Film 150 ohm 1W ±5%	1	C
R841,842	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	2	C
R901	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R902	**ERG1ANJ220**	M. Film 22 ohm 1W ±5%	1	C
R904	**ERG1ANJ220**	M. Film 22 ohm 1W ±5%	1	C
R905	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		CAPACITORS		
C102	**ECCD1H101JC**	Ceramic 100pF 50WV ±5%	1	C
C103	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C104	**ECCD1H120JC**	Ceramic 12pF 50WV ±5%	1	C
C105	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C106	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C
C107	**ECCD1H080CC**	Ceramic 8pF 50WV ±0.25pF	1	C
C108	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C
C109	**ECCD1H070CC**	Ceramic 7pF 50WV ±0.25pF	1	C
C110	**ECCD1H040CC**	Ceramic 4pF 50WV ±0.25pF	1	C
C111	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C
C112	**ECCD1H220JC**	Ceramic 22pF 50WV ±5%	1	C
C113	**ECCD1H100FC**	Ceramic 10pF 50WV ±5%	1	C
C114	**ECCD1H020CC**	Ceramic 2pF 50WV ±0.25pF	1	C
C115	**ECCD1H100KV**	Ceramic 10pF 50WV ±10%	1	C
C116	**ECCD1H080CC**	Ceramic 8pF 50WV ±0.25pF	1	C
C117	**ECCD1H070CC**	Ceramic 7pF 50WV ±0.25pF	1	C
C118	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C201	**ECCD1H330JC**	Ceramic 33pF 50WV ±5%	1	C
C202	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C
C203	**ECCD1H101JC**	Ceramic 100pF 50WV ±5%	1	C
C204	**ECCD1H470JC**	Ceramic 47pF 50WV ±5%	1	C
C205	**ECCD1H050CC**	Ceramic 5pF 50WV ±0.25pF	1	C
C206	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C
C207,208	**ECKD1H103MD**	Ceramic 0.01mfd 50WV ±20%	2	C
C209,210	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	2	C
C211	**ECQS1361JZ**	Styrol 360pF 100WV ±5%	1	C
C212	**ECQS1241JZ**	Styrol 240pF 100WV ±5%	1	C
C213	**ECQS1392JZ**	Styrol 3900pF 100WV ±5%	1	C
C214	**ECCD1H100FC**	Ceramic 10pF 50WV ±0.25pF	1	C
C215	**ECQS1151JZ**	Styrol 150pF 100WV ±5%	1	C
C216	**ECCD1H080CC**	Ceramic 8pF 50WV ±0.25pF	1	C
C217	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C218	**ECKD1H223PF**	Ceramic 0.022mfd 16WV +100, −0%	1	C
C219	**ECQS1152JZ**	Styrol 1500pF 100WV ±5%	1	C
C220	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C221	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C222	**ECCD1H270JC**	Ceramic 27pF 50WV ±5%	1	C
C223	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	1	C
C224	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C226	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	1	C
C227	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C
C228	**ECKD1H223PF**	Ceramic 0.022mfd 16WV +100, −0%	1	C
C230	**ECCD1H181JC**	Ceramic 180pF 50WV ±5%	1	C
C231	**ECCD1H270JC**	Ceramic 27pF 50WV ±5%	1	C
C232	**ECCD1H101JC**	Ceramic 100pF 50WV ±5%	1	C
C233	**ECEA35V4R7**	Electrolytic 4.7mfd 35WV	1	C

Except NEM

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C234	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C
C235	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	1	C
C236	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C237	**ECKD1H103MD**	Ceramic 0.01mfd 50WV ±20%	1	C
C238	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C
C239	**ECKD1H222KB**	Ceramic 0.0022mfd 50WV ±10%	1	C
C240	**ECQS1472JZ**	Styrol 4700pF 100WV ±5%	1	C
C241	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C
C301	**ECEA50V1**	Electrolytic 1mfd 50WV	1	C
C302	**ECKD1H333PF**	Ceramic 0.033mfd 50WV +100, −0%	1	C
C303	**ECKD1H222KB**	Ceramic 0.0022mfd 50WV ±10%	1	C
C304	**ECQM05183MZ**	Polyester 0.018mfd 50WV ±20%	1	C
C305	**ECEA16V33**	Electrolytic 33mfd 16WV	1	C
C306	**ECEA10V100**	Electrolytic 100mfd 10WV	1	C
C307	**ECEA16V33**	Electrolytic 33mfd 16WV	1	C
C308,309	**ECKD1H153MD**	Ceramic 0.015mfd 50WV ±20%	2	C
C310,311	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	2	C
C312	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C401,402	**ECAG16E4R7**	Electrolytic 4.7mfd 16WV	2	C
C403,404	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C405,406	**ECCD1H560JC**	Ceramic 56pF 50WV ±5%	2	C
C407,408	**ECEA16V33**	Electrolytic 33mfd 16WV	2	C
C409,410	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C411,412	**ECQM05392MZ**	Polyester 0.0039mfd 125WV ±20%	2	C
C415,416	ECEA16N4R7	Electrolytic 4.7mfd 16WV	2	C
C417,418	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	2	C
C419,420	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C421,422	ECAG16ER33	Electrolytic 0.33mfd 16WV	2	C
C423,424	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C425,426	**ECQM05473MZ**	Polyester 0.047mfd 125WV ±20%	2	C
C427,428	**ECQM05103MZ**	Polyester 0.01mfd 125WV ±20%	2	C
C429,430	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C431,432	**ECQM05472MZ**	Polyester 0.0047mfd 125WV ±20%	2	C
C433,434	**ECQS1102JZ**	Styrol 1000pF 100WV ±5%	2	C
C436,437	**ECEA25V220**	Electrolytic 220mfd 25WV	2	C
C438	**ECEA16V470**	Electrolytic 470mfd 16WV	1	C
C439	**ECEA16V47**	Electrolytic 47mfd 16WV	1	C
C440	ECET16R3300S	Electrolytic 3300mfd 16WV	1	C
C441	**ECEA10V220**	Electrolytic 220mfd 10WV	1	C
C443,444	**ECQM05183MZ**	Polyester 0.018mfd 125WV ±20%	2	C
C445	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	1	C
C451,452	**ECAG16E4R7**	Electrolytic 4.7mfd 16WV	2	C
C453,454	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C455,456	ECAG16ER22	Electrolytic 0.22mfd 16WV	2	C
C457	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100, −0%	1	C
C459	**ECEA35V4R7**	Electrolytic 4.7mfd 35WV	1	C
C461,462	ECAG16ER1	Electrolytic 0.1mfd 16WV	2	C
C463,464	**ECQM05393MZ**	Polyester 0.039mfd 125WV ±5%	2	C

NEM only

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C501,502	**ECEA16V47**	Electrolytic 47mfd 16WV	2	C
C503,504	**ECCD1H560JC**	Ceramic 56pF 50WV ±10%	2	C
C505,506	**ECKD1H102KB**	Ceramic 0.001mfd 50WV +100,−0%	2	C
C507,508	**ECCD1H560JC**	Ceramic 56pF 50WV ±10%	2	C
C509,510	**ECEA16V33**	Electrolytic 33mfd 16WV	2	C
C511~514	**ECEA50V1**	Electrolytic 1mfd 50WV	4	C
C515,516	**ECKD1H102KB**	Ceramic 0.001mfd 50WV +100,−0%	2	C
C517,518	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C519,520	**ECKD1H222KB**	Ceramic 0.0022mfd 50WV ±20%	2	C
C521,522	**ECKD1H153MD**	Polyester 0.015mfd 125WV ±20%	2	C
C523,524	ECKD1H223MD	Ceramic 0.022mfd 50WV ±20%	2	C
C525,526	**ECQM05683MZ**	Polyester 0.068mfd 125WV ±20%	2	C
C527,528	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C529,530	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C531,532	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C535	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C536	**ECEA10V100**	Electrolytic 100mfd 10WV	1	C
C537,538	**ECQM05333MZ**	Polyester 0.033mfd 125WV ±20%	2	C
C539,540	**ECQM05103MZ**	Polyester 0.01mfd 125WV ±20%	2	C
C541	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C701,702	**ECAG16E3R3**	Electrolytic 3.3mfd 16WV	2	C
C703,704	**ECEA35V47**	Electrolytic 47mfd 35WV	2	C
C705,706	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C707,708	**ECEA16V47**	Electrolytic 47mfd 16WV	2	C
C709,710	ECQM05473MZ	Polyester 0.047mfd 125WV ±20%	2	C
C711,712	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C801,802	ECAG16ER33	Electrolytic 0.33mfd 16WV	2	C
C803,804	**ECQS1392JZ**	Styrol 3900pF 100WV ±5%	2	C
C805,806	**ECQS1332KZ**	Styrol 3300pF 125WV ±10%	2	C
C807,808	**ECQS1222JZ**	Styrol 2200pF 100WV ±5%	2	C
C809~812	**ECEA16V10**	Electrolytic 10mfd 16WV	4	C
C813,814	**ECQS1472JZ**	Styrol 4700pF 100WV ±5%	2	C
C815,816	**ECQS1562JZ**	Styrol 5600pF 100WV ±5%	2	C
C817,818	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C819,820	ECQM05273FZ	Polyester 0.027mfd 50WV ±1%	2	○C
C821,822	ECQM05473JZ	Polyester 0.047mfd 50WV ±5%	2	○C
C823,824	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C825,826	**ECQM05104KZ**	Polyester 0.1mfd 125WV ±10%	2	C
C827,828	**ECQM05334KZ**	Polyester 0.33mfd 125WV ±10%	2	C
C829,830	**ECEA16V220**	Electrolytic 220mfd 16WV	2	C
C831,832	ECAG16ER1	Electrolytic 0.1mfd 16WV	2	C
C833	**ECQS1471JZ**	Ceramic 470pF 100WV ±5%	1	C
C834	**ECQS1182JZ**	Styrol 1800pF 100WV ±5%	1	C
C835	ECQM05333MZ	Polyester 0.033mfd 125WV ±20%	1	C
C836	ECQM05683MZ	Polyester 0.068mfd 125WV ±20%	1	C
C837	ECQM05104KZ	Polyester 0.1mfd 125WV ±10%	1	C
C838,839	**ECCD1H331JC**	Ceramic 330pF 50WV ±5%	2	C
C840	**ECEA16V470**	Electrolytic 470mfd 16WV	1	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C901	ECET16R3300S	Electrolytic 3300mfd 16WV	1	C
C902	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C903	**ECEA10V100**	Electrolytic 100mfd 10WV	1	C
C904,905	ECET25R332SU	Electrolytic 3300mfd 25WV	2	C
C906	**ECEA25V2200**	Electrolytic 2200mfd 25WV	1	C
C907	ECQM05334MZ	Polyester 0.33mfd 125WV ±20%	1	C
C908	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C912	ECKDDS101MB	Ceramic 100pF 250WV ±20%	1	C
C913	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C

VARIABLE RESISTORS

VR301	**EVLT0AA00B14**	Variable Resistor, Pre-set, 10kB, Stereo Eye	1	A
VR401,402	EVLS3AA00B24	Variable Resistor, Pre-set, 20kB, Dolby	2	A
VR403,404	EVLS3AA00B14	Variable Resistor, Pre-set, 10kB	2	A
VR451,452	EVH6UA363A24	Variable Resistor, 20kA, REC Level	2	○A
VR461,462	EVLT0AA00B53	Variable Resistor, 5kB, REC Current Control	2	A
VR501~504	EWK8EA331A54	Variable Resistor, 50kA, Bass and Treble Control	2	A
VR505,506	EWFN3AK30A54	Variable Resistor, 50kA, Volume Control	2	A
VR507	EVH0UA363G54	Variable Resistor, 50kG, Balance Control	1	A
VR801	EVLS3AA00B13	Variable Resistor, Pre-set, 1kB	1	A
VR802,803	EVLS3AA00B14	Variable Resistor, Pre-set, 10kB	2	A

VARIABLE CAPACITORS

CT101,102	SCVC158J124K	Tuning Capacitor	1	A
CT103	ECV1ZW10X32	Trimmer Capacitor	1	A
CT201~206	SCV3T12S	Trimmer Capacitor	6	A

SWITCHES

S1	ESB7067	Switch, Power	1	A
S2	ESE3742	Switch, Voltage Selector	1	B
S3	SSH52	Switch, Tape Monitor	1	A

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
S4	SSH32	Switch, Speaker Selector	1	A
S5	SSS28	Switch, Whistle Defeat	1	A
S10	SSS82	Switch, Dolby	1	○ A
S11	SSS80	Switch, Bias Nor – CrO_2	1	○ A
S12	SSS84	Switch, Equalizer Nor – CrO_2	1	○ A
ST1～12	ESD86021	Switch, REC-Play	1	○ A
SF1～6	SSR72K	Switch, Function Selector	1	A
SB1～12	SSR76K	Switch, Band Selector	1	A
SX	ESA2056	Remote Wire Assembly	1	○ A
		CHASSIS		
CH1	SUV108-1	Bracket, Power Switch	1	C
CH2	RHG109	Cushion, F ANT	1	C
CH3	SMN802	Bracket, Meter	1	○ C
CH4	SDH186	Reflector, Meter	1	○ C
CH5	SDA32-2	Holder, Pointer	1	C
CH5-1	SDP580	Pointer, Dial	1	C
CH6	SHG9100	Cushion, Lamp	3	C
CH7	SGL88	Stereo Eye	1	C
CH8	SHG950-2	Cushion, Stereo Eye and Pointer	2	C
CH9	SUS184	Spring	3	C
CH10	SDD46K	Drum, Dial	1	C
CH11	RDS4170A	Spring, Dial	1	C
CH12	RDR20	Pulley	4	C
CH13	RDR23	Pulley	1	C
CH14	RDY36	Shaft, Pulley	3	C
CH15	RDY34	Shaft, Pulley	2	C
CH16	RNW150-2	Washer, Pulley	5	C
CH17	RDZ05-A	Dial Cord	165cm	C
CH18	SDT9302K	Tuning Shaft	1	C
CH19	SMX124-2	Cover, Switch	1	C
CH20	SHG9094	Cushion, Lamp	1	○ C
CH21	RHR969ZA	Latch	8	C
CH22	SMX134	Box, Primary Circuit	1	○ C
CH23	SMX136	Cover, Primary Circuit Box	1	○ C
CH24	RHG3-1	Cushion, ANT Lead	1	C
CH25	SXE102	Eject Arm Ass'y	1	C
CH26	SUS180	Spring, Eject Arm	1	C
CH27	SUD92	Spacer, Player Mounting	2	C
CH28	SJA88	Power Cord, IT, GF, GF-2	1	B
	SJA46	Power Cord, DEM, HO, FIN, NEM	1	B
	SJA68	Power Cord, SEV	1	B
CH29	RJF7A	Fuse Holder	8	B

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CH30	RJJ78	Jack, Microphone	2	B
CH31	SNE420	Nut, MIC Jack	2	C
CH32	SJS9202-1	Terminal Board, FM ANT	1	C
CH33	SJS9206-1	Terminal Board, AM ANT	1	C
CH34	SJF9206	Jack Board	1	C
CH35	SJF9404	Jack Board	1	C
CH36	RJJ108ZA-H	Headphone Jack	1	○ C
CH37	SUV122	Cover, Headphone Jack	1	C
CH38	XNSS12	Nut, Headphone Jack	1	○ C
CH39	SWP64	Lead Ass'y, Phono Output	1	○ C
CH40	SWK200	Connector Ass'y, 5P (MC7)	1	○ C
CH41	SWK202	Connector Ass'y, 3P (MC6)	1	○ C
CH42	SWK204	Connector Ass'y, 5P (MC8)	1	○ C
CH43	SHR134	Strain Relief	2	C
CH44	XTV3+8B	Screw, Cassette Mounting	5	C
CH45	XYN26+C8	Screw, Cassette Panel Mounting	2	C
CH46	XMC27+10FZ	Screw, Cassette Panel Mounting	2	C
CH47	XTW3+8BFZ	Screw, Hinge Mounting (4), Bottom Cover (1), Rear Cover (5) Mounting	10	C
CH48	SHR9014-1	Blind	1	C
CH49	XYN4+C12S	Screw, Bottom Cover Mounting	4	C
		ACCESSORIES		
A1,2	WM2201N	Microphone	2	A
A3,4	WN133	Microphone Stand	2	A
A5	SQX5740	Instruction Book, DEM, FIN, NEM	1	○ C
	SQX5742	Instruction Book, IT, GF, GF-2, HO, SEV	1	○ C
A6	SPT1HCZNRAZ	Demonstration Tape	1	○ C
A7	SJP9206	Plug, FM ANT	1	C
		PACKING		
PA1	SPN2550	Carbon, Inner	1	○ B
PA2	SPN2352-1	Pad, Right	1	○ C
PA3	SPN2552	Pad, Left	1	○ C
PA4	SPN2356	Pad, Dust Cover	2	C
PA5	SPN2358	Pad, Turntable	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
PA6	SPN2370-1	Pad, Centre Unit	1	○ C
PA7	SPN2362	Accessory Box	1	C
PA8	SPN2364	Cover, Accessory Box	1	C
PA9	SPN2384-1	Pad, Rear	1	○ C
PA10	SPN2440-2	Protector Sheet	2	C
PA11	SPH6026	Soft Sheet, Dust Cover	1	C
PA12	SNE208	Screw, Player Transit	3	C
PA13	SNW601	Washer, Player Transit	3	C
		CABINET		
CA1	SKA1660	Cabinet Ass'y, Black	1	○ A
CA1-1	SHG9058-1	Cushion, Dust Cover	2	B
CA2	SYE440	Cassette Panel Ass'y	1	○ B
CA2-1	SGX978	Ornament, Cassette Panel	1	○ C
CA3	SKU2340	Rear Board	1	○ B
	SKU2341	Rear Board, for IT	1	○ B
CA4	SYE394	Cassette Cover Assembly	1	A
CA5	SGE638	Dust Cover	1	A
CA6	SHS3018	Felt	1	C
CA7	SYL6-1	Foot	3	C
CA8	SYU294	Bottom Cover	1	○ B
CA9	SBC206	Button, Reset	1	○ B
CA10	SXE108	Fook Ass'y	1	C
CA11	SYP248	Escutcheon Ass'y	1	○ A
CA11-1	SGE586-1	Transparent Plate, Dial	1	B
CA11-2	SKE282	Guide, Push Button	3	C
CA11-3	SME152-2	Plate, MIC Jack	1	○ C
CA12	SBN666K	Knob, Tuning	1	A
CA13	SBN668K-2	Knob, Volume Control and Others	6	○ A
CA14	SBC196	Button, Power	1	B
CA15	SBC198	Button, Push	2	B
CA16	SGE634-1	Front Cover, Cassette	1	B
CA17	SGX960-2	Ornament, Cassette Front Cover	1	○ C
CA18	SBN674K-4	Knob, REC	2	○ A
CA19	SBH5508	Hinge, Dust Cover	2	B

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		SPEAKER SYSTEM (SB-250L) (B) – GF		
CA30	SKA1502	Speaker Enclosure	2	○ A
CA31	SYB166	Baffle Board Assembly	2	A
CA32	SKU2120	Rear Board	2	A
CA33	RGB159A	Badge	2	B
CA34	SJP2206-2	Speaker Cord	2	A
SP1,2	EAS20PL116SA	Woofer, 20cm	2	A
SP3,4	EAS5PH15SC	Tweeter, 5cm	2	A
CA35	SGN2600	Name Plate	2	B
	ECEA25Y3R3	Electrolytic 3.3mfd 25WV	2	B
CA36	SJR206	Terminal Strip, 2P	2	C
PA31	SPN1724	Carton, Speaker System	1	C
PA32	SPN2346	Pad, Top and Bottom	2	C
PA33	SPN2280-1	Pad, Center	1	C
PA34	SPH6030	Sheet, Speaker System	2	C
		SPEAKER SYSTEM (SB-250L) (B) – IT		
CA30	SKA1502	Speaker Enclosure	2	A
CA31	SYB166	Baffle Board Assembly	2	A
CA32	SKU2120	Rear Board	2	A
CA33	RGB159A	Badge	2	B
CA34	SJP2206-2	Speaker Cord	2	A
SP1,2	EAS20PL116SA	Woofer, 20cm	2	A
SP3,4	EAS5PH15SC	Tweeter, 5cm	2	A
CA35	ECEA25Y3R3	Electrolytic 3.3mfd 25WV	2	B
CA36	SJR206	Terminal Strip, 2P	2	C
PA31	SPN1724-1	Carbon, Speaker System	1	○ C
PA32	SPN2346	Pad, Top and Bottom	2	C
PA33	SPN2280-1	Pad, Center	1	C
PA34	SPH6030	Sheet, Speaker System	2	C
		CASSETTE TAPE RECORDER/PLAYER (SJD76)		
1	SYE436	REC Button	1	C
2	SYE434	Push Button	6	C
3	SMQ1232	REC Safety Lever	1	C
4	SMQ662	Spring, REC Safety Lever	1	C
5	SNE432	Circlip, REC Safety Lever	1	C
6	SJH34	R/P Head	1	○ C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
7	SJH14	Erase Head	1	C
8	SMQ678	Spring, R/P Head and Flywheel Bracket	2	C
9	SMQ1360	Spring A, Head Panel	2	C
10	SMQ1362-1	Head Base	1	C
11	SMQ1388	Eject Stop Lever w/Spring	1	C
12	SMQ1390	Auto-Stop Lever Assembly	1	C
13	SMQ1392	Spacer, Auto-Stop Lever	1	C
14	SMQ1364	Pressure Roller Assembly	1	C
15	SMQ1366	Spring, Pressure Roller	1	C
16	SMQ1626	Reel Assembly	2	C
17	SMQ1344	Tape Counter	1	C
18	SMQ1056	Counter Belt	1	C
19	SMQ1354	Bracket Arm	1	C
20	SMQ1358	Spring, Brake Arm	1	C
21	SMQ1394	Spring, Tape Holder	1	C
22	MHT5PS	Motor	1	C
23	SMQ1384	Motor Pulley w/Screw (XXA2A-3)	1	C
24	SMQ716	Rubber Cushion, Motor	3	C
25	SMQ718	Spacer, Motor	3	C
26	SMQ1378	Motor ON-OFF Switch S8	1	C
27	SMQ1396	Eject Slide Lever w/Spring	1	C
28	SMQ1374	Spacer A, Eject Slide Lever	1	C
29	SMQ1398	Spacer B, Eject Slide Lever	1	C
30	SMQ1368	Clutch Assembly w/Spring	1	C
31	SMQ1370-1	Bearing	1	C
33	SMQ148	Washer, Oil Thrower	2	C
34	SMQ1402	Nylon Washer	1	C
35	SMQ686	Flywheel	1	C
36	SMQ1372	Main Belt	1	C
37	SMQ1404	Flywheel Bracket	1	C
38	SMQ1382-1	FF Arm Assembly w/Spring	1	C
39	SMQ1406	Brake Operating Plate	1	C
40	SMQ1408	Rewind Arm w/Spring	1	C
41	SMQ1386	Rewind Idler	1	C
42	SMQ1410	Pause Lever	1	C
43	SMQ1412	Spacer, Pause Lever	1	C
44	SMQ1414	Pause Slide Lever A w/Spring	1	C
45	SMQ1416	Pause Slide Lever B	1	C
46	SMQ1376	Pause Click Lever	1	C
47	SMQ1418	Spring, Pause Click Lever	1	C
48	SMQ1640	Bracket, Switch	1	C
49	SMQ1642	Muting, Switch	1	C
50	SMQ1650	REC Slide Lever	1	○C
51	SUS208-1	Spring Plate, REC Switch	1	C
52	SMQ1426	Spacer, REC Slide Lever	1	C
54	SMQ1430	Rewind Lever	1	C
55	SMQ1432	FF Lever	1	C
56	SMQ1434	Nylon Washer 6.1ϕ	1	C
57	SMQ1436-1	Kick Lever, Auto-Stop	1	C
58	SMQ1438	Spacer, Kick Lever	1	C
59	SMQ1530	Play Lever	1	C
60	SMQ1524	Spacer, Play Lever	1	C
61	SMQ1444	Spring B, Head Panel	1	C
63	SMQ1654	Push Button Frame Assembly	1	C
64	SMQ1652	Hanger, Spring	1	○C
65	SMQ1638	Spring, REC Lever	1	C
100	XYN2+C5	Screw 2 mm × 5	3	C
101	XSN2+8	Screw 2 mm × 5, Muting Switch	1	C
102	XSS2+5	Screw 2 mm × 5	1	C
103	XSN2+10	Screw 2 mm × 10	3	C
104	XYN26+C5	Screw 2.6 mm × 1	6	C
105	XSN26+6	Screw 2.6 mm × 6	4	C
106	XSB26+4	Screw 2.6 mm × 4, Head Panel	2	C
107	XSB26+6	Screw 2.6 mm × 6, Head Panel	1	C
108	XSN26+10	Screw 2.6 mm × 10	1	C
109	XSS3+5S	Screw 3 mm × 5, Counter Mounting	2	C
111	XSN2D6	Screw 2mm × 6	1	C
112	XWE2A6	Washer 2ϕ	3	C
113	XWE26D7	Washer 2.6ϕ, 0.5t	5	C
115	XYN26+C6	Screw 2.6 mm × 6, Play Lever	3	C
150	XUC12FT	Circlip 1.2ϕ	2	C
151	XUC15FT	Circlip 1.5ϕ	4	C
152	XUCS19	Circlip 1.9ϕ	1	C
153	XUC2FT	Circlip 2ϕ	2	C
155	XUC25FT	Circlip 2.5ϕ	1	C
156	XUC32FT	Circlip 3.2ϕ	1	C
157	XUC4FT	Circlip 4ϕ	2	C

RECORD PLAYER (SAP-825DM)

1	SFTE623-1	Turntable	1	C
1-1	SFTG829-02	Turntable Rubber	1	C
1-2	SFTK809-01	Trim, Turntable	1	C
2	SFGB321-1	Belt	1	C
3	SFBP825D01E	Main Plate Assembly	1	C
4	SFTU825E01E	Turntable Shaft Assembly	1	C
4-1	SFTJ623-1E	Turntable Shaft	1	C
4-2	XTV3+5BFU	Self Tapping Screw	1	C
4-3	XTV3+6BFU	Self Tapping Screw	3	C
4-4	SFER1C	Lug	1	C
5	SFWE154A1	45 RPM Adaptor Complete	1	C
5-1	SFKT823-1	Adaptor Holder	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
5-2	XNG4BFU	Nut	1	C
6	SFKU829E01	Pickup Arm Reset Assembly	1	C
6-1	XWA4BFU	Spring Washer 4ϕ	1	C
6-2	XNG4HFU	Nut	1	C
7	EPU-35SMKD	Pickup Arm Assembly	1	C
7-1	SFP-CC3501K	Shell Assembly	1	C
7-2	SFP-WG3501K	Balance Weight Assembly	1	C
7-3	SFP-AM3505K	Pickup Base	1	C
7-4	XWA4BF	Washer 4ϕ	2	C
7-5	XNG4BFU	Nut	2	C
7-6	SFUP623-1	Protection Cover	1	C
7-7	SFP-RT3500K	Lifter Assembly	1	C
7-8	SFUM623-1	Lifter Fixing Cam	1	C
7-9	SFP-SP3500	Spring, Pickup	1	C
7-10	SFXN623-1	Nut	1	C
7-11	XSN3+16FU	Self Tapping Screw	1	C
7-12	SFQA829-03	Spring, Lifter	1	C
8	SFUG825C01A	Main Gear Assembly	1	C
8-1	XUC5FY	Circlip	1	C
9	SFKT623-1E	Play/Cut Knob Assembly	1	C
9-1	SFXB530-1	Play/Cut Lever Base	1	C
9-2	XWA9BFU	Spring Washer	1	C
9-3	SFXN530R1	Nut	1	C
9-4	SFUP825C02E	Play/Cut Lever Assembly	1	C
9-5	XUC5FY	Circlip 5ϕ	1	C
9-6	SFUM623-6	Cut Plate	1	C
9-7	SFQH831-1	Spring, Cut Plate	1	C
10	SFUM623-4E	Operating Cam Assembly	1	C
10-1	SFQH623-02	Spring, Operating Cam	1	C
10-2	SFXG623-2	Pivot Screw	1	C
10-3	SFUM623-5A	Pickup Arm Fixing Plate	1	C
11	SFUC633-1F	Starting Lever Assembly	1	C
11-1	CSTW-3	Circlip	1	C
12	SFXG623-05	Switch Lever Shaft	1	C
12-1	XNG3BFU	Nut	1	C
12-2	XWA3BF	Spring Washer	1	C
12-3	SFUM623-09	Switch Lever	1	C
12-4	XUC4FY	Circlip	1	C
13	SFUB827-01E	Operating Plate Assembly	1	C
13-1	SFQH623-1	Spring, Operating Plate	1	C
	XUC5FY	Circlip 5ϕ	1	C
	XUC4FY	Circlip 4ϕ	1	C
	SFXW028-01	Washer	1	C
14	SFUM825C03	Cueing Cover	1	C
15	SFUK825H02A	Cueing Lever Assembly	1	C
15-1	SFUK825C01E	Bracket, Cueing Lever	1	C
15-2	SFUP825D02	Cueing Lever	1	C
15-3	SFXW829T02	Washer	1	C
15-4	XUC5FY	Circlip 5ϕ	1	C
15-5	SFUM825C01	Cueing Cam	1	C
15-6	XUC3FY	Circlip 3ϕ	1	C
15-7	SFQH825H01	Spring, Cueing	1	C
16	SFMF825D01	Motor Plate Holder Assembly	1	C
16-1	SFMC020L01E	Motor Assembly w/Governor Circuit	1	C
16-2	SFXO020L01	Stud, Motor Mounting	3	C
16-3	SFGC020L01	Rubber Cushing	3	C
16-4	XWE26D75BW	Washer	3	C
16-5	XYN26+C8FU	Screw, Motor Mounting	3	C
16-6	SFUZ825H01	Insulating Sheet	1	C
16-7	XTV3+6BFU	Screw, Motor Plate Holder	4	C
17	SFDA825H01A	Power Source Plug Assembly	1	C
17-1	SFUP530-1	Lead Clamper	2	C
17-2	SFGT829T02	Rubber Tube	1	C
17-3	XTN3+6BFU	Screw	2	C
18	SFDS-AM9688	Micro Switch (S8)	1	C
18-1	XTN3+18BFU	Screw, Micro Switch Mounting	1	C
19	SFUM825C02	Speed Selector Cover	1	C
19-1	SFDS825H01A	Speed Selector Switch Assembly (S9)	1	C
19-2	SFDS-T-129LM	Speed Selector Switch	1	C
19-3	SFUP825D01	Switch Base	1	C
19-4	SFKT825D01	Switch Lever	1	C
19-5	XTV3+6BFU	Screw, Switch Mounting	2	C
20	SFQC925-01	Spring, Cushion	4	C
20-1	SFXO929-02	Spacer	4	C
20-2	XYN4+C10FU	Screw	4	C
20-3	SFUZ929-01	Cushion A	4	C
20-4	SFCZ929-01	Cushion B	4	C
21	SFUP829A01E	PU Output Socket Assembly	1	C
21-1	XTV3+6BFU	Screw	2	C
	SFNN825H01	Name Paper	1	C
	SFNZ825H01	Caution, Clamp	1	C
	SFNH825H01	Label, Stylus	1	C
	SFNZ020C03	Caution, Safety	1	C
	EPC-78SMBD	Cartridge w/Stylus	1	C
	EPS-35STSD	Stylus, Diamond	1	C

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